



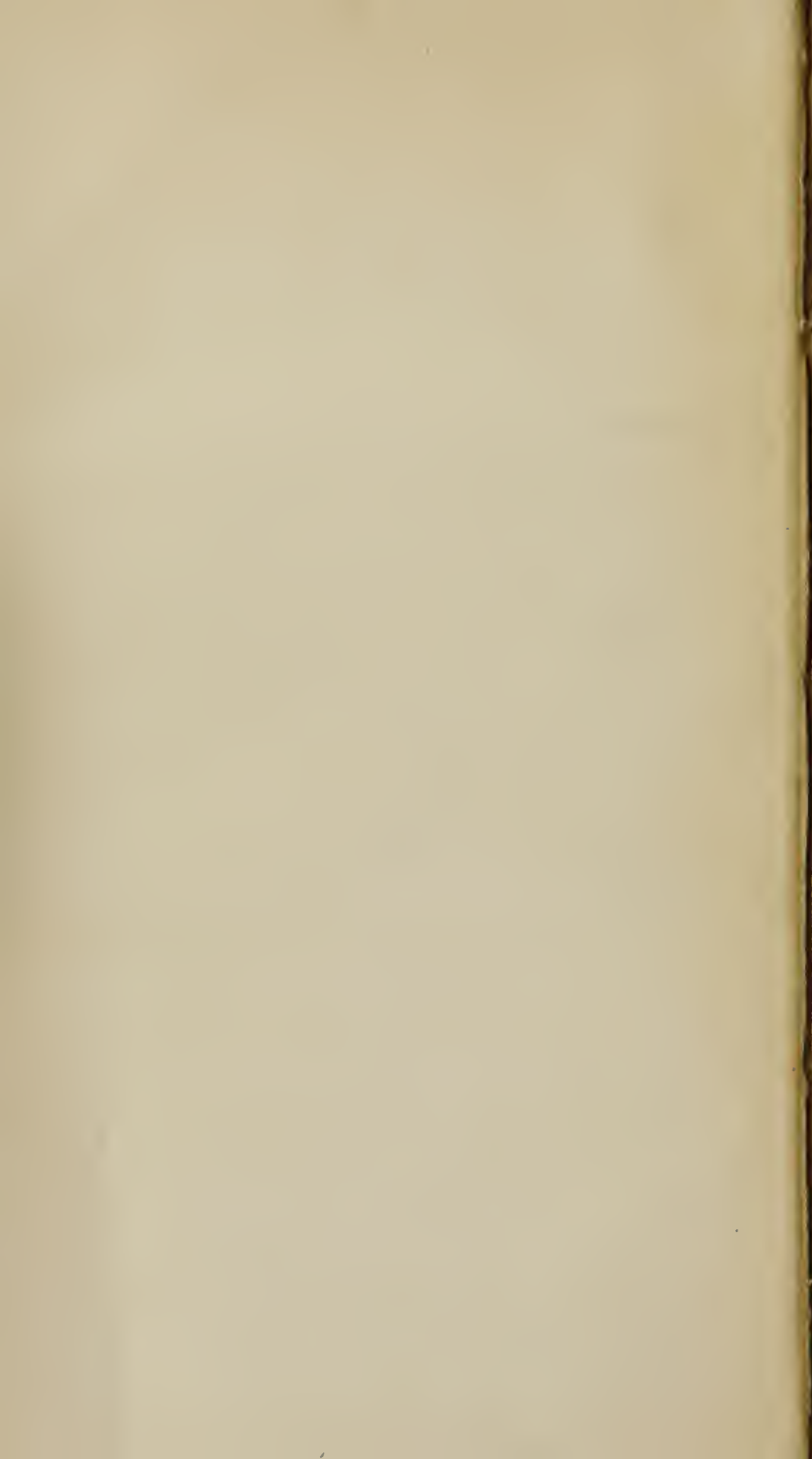
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No. *18262*





OBSERVATIONS
ON THE
CAUSES AND CURE
OF
REMITTING
OR
BILIOUS FEVERS.

TO WHICH IS ANNEXED, AN
ABSTRACT OF THE OPINIONS AND PRACTICE
OF DIFFERENT AUTHORS;

AND AN APPENDIX,
EXHIBITING FACTS AND REFLECTIONS RELATIVE TO THE
Synochus Icteroides, or Yellow Fever.

BY WILLIAM CURRIE,

Fellow of the College of Physicians of Philadelphia, &c.

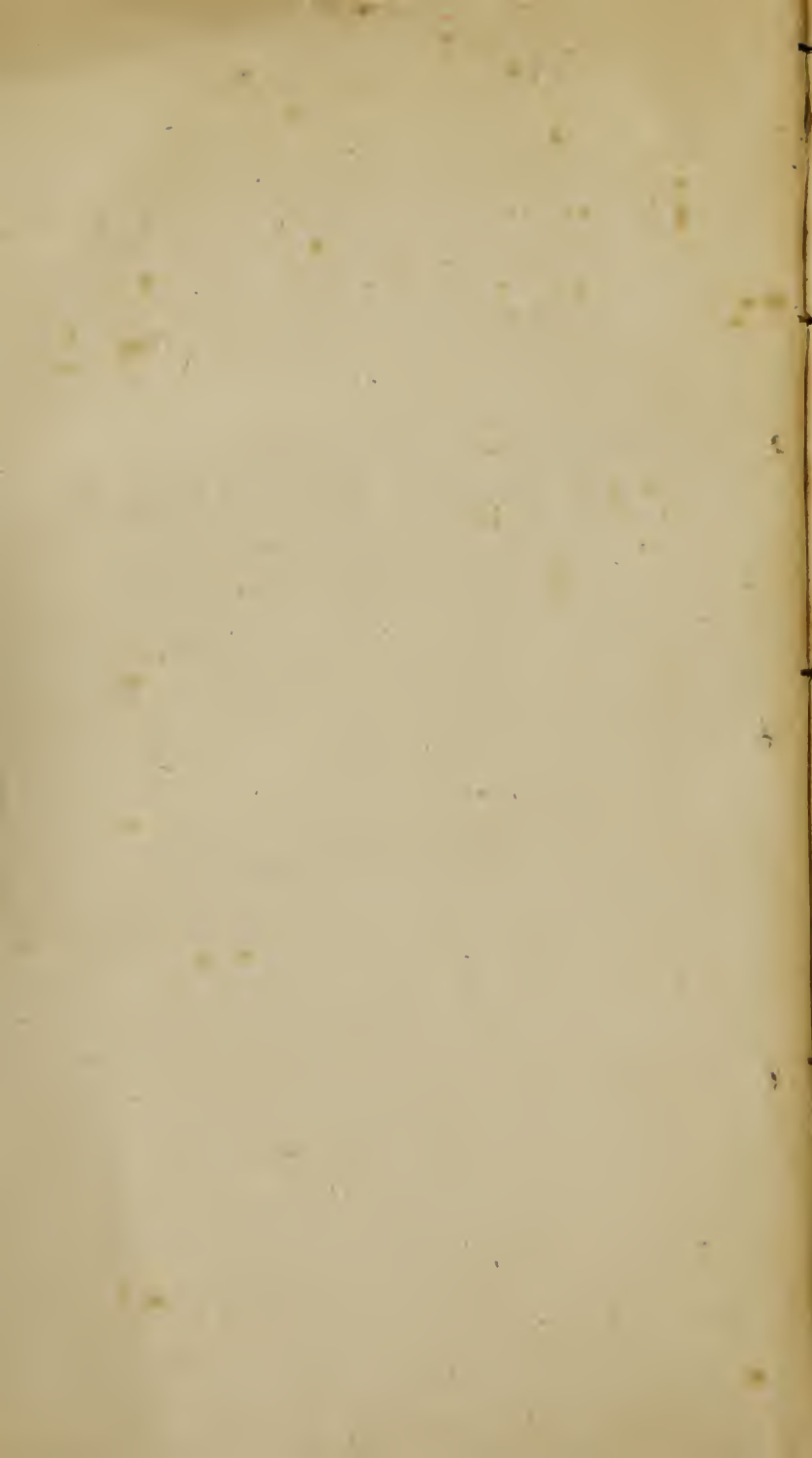
Theory may deceive, Analogy may mislead;
But Experience leads to truth.

PHILADELPHIA.

PRINTED FOR THE AUTHOR, BY WILLIAM T. PALMER,
NO. 18, NORTH THIRD-STREET.

1798

18262



INTRODUCTION.

THE following *Production*, (the result of much reading, reflection, and considerable experience) contains Observations on the situations, climates and seasons in which *Remitting* or *Bilious Fevers* are most prevalent ; the causes from whence they originate, the circumstances which render them epidemic ; remarks on Sydenham's doctrine of the influence of constitutions or conditions of the atmosphere. An examination of the question, whether Intermittents or Remittents are contagious or not ; and a comparison of their distinguishing symptoms, with those of the Contagious Fever, commonly called the Yellow Fever, which has occasioned so much mortality and distress, in different sea-port towns of the United States of America, since the year 1793. With a description of the Remitting Fever as it appears in Philadelphia ; and the method of treatment which the Author has experienced to be most successful.

An Abstract is also annexed of the opinions and observations of almost all the physicians, that have practised in different ages, and in different climates, which have come to the Author's knowledge, that he thinks worthy of notice ; the object of which, is to furnish those at a distance from public libraries, with a compendious and connected view of every thing interesting, that has been published, and that lies scattered in a multitude of volumes on the subject ; free from the perversions of falacious and misleading theory, or the misrepresentations

tations of uncharitable, and distorting party spirit. He therefore expects that this part of the subject at least, will afford the discerning and judicious reader, both pleasure and profit.

The experienced Lind,* was of opinion. that a judicious synopsis, or abstract of the writings on fevers, in a chronological series, would be a valuable work, as it would contain treasures of useful knowledge in a small compass, provided facts and naked truths disengaged from conjecture, or hypothesis were only retained.

In such a work we might contemplate under one view, the principal advances which have been made towards a more complete knowledge of fevers, and a more successful method of treating them, from the first records of the healing art, to the present period. Such a work would also assist us, in judging how far hypotheses and pre-conceived opinions. (which teach by rule to stray) have retarded its progress, and advancement. It would also enable us to distinguish the deductions, and conclusions drawn from experience and observation, those pillars of certainty and truth, from those derived from conjecture, or mistaken facts.

An appendix is also added, exhibiting facts and reflections relative to the synochus icteroides or yellow fever.

How the Author has executed his design, must be determined by those who are competent judges of the subject, but he flatters himself, that the impartiality and fidelity with which he has endeavoured to execute it, will have the effect of softening the censure, which its defects may merit.

* 2nd. Paper on Infection at page 79.

OBSERVATIONS

ON

BILIOUS FEVERS.

FEVERS are termed bilious, when at their commencement, or during their progress, a greater quantity of bile is secreted and excreted than in time of health.

Fevers in which a preternatural or excessive secretion and excretion of bile, is a characteristic symptom, have always more or less of a remission with respect to the violence of the feverish symptoms once in every twenty-four hours; this remission in the greatest number of cases takes place every day in the forenoon, and the feverish symptoms begin to encrease about noon, or imitating the type or form of what is called a double tertian ague, the remission comes on one day in the forenoon, and the next in the afternoon; or alternately one day in the afternoon, and the next in the forenoon.

BILIOUS FEVERS.

Or fevers of the remitting kind accompanied with bilious evacuations, prevail more universally than any other kind, and although they are not so dangerous, or mortal, as pestilence or typhus, yet from the universality of their sway, and the frequency of their occurrence they destroy greater numbers in a course of years, than any other kind or form of fever.

During, or soon after the periodical rainy seasons of the torrid zone, especially where the soil is moist and
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unsheltered

unsheltered from the parching rays of a vertical sun, and abounds with putrefying vegetable and animal substances. Fevers of a remitting type with reternatural excretions of bile, often occasion mortality almost equal to that of the Asiatic plague.

This fever not only destroys the majority of new settlers in such situations, but renders the constitutions of those who escape with life, infirm the remainder of their days.

In many parts of Europe, particularly where the situation is flat, and the soil moist, this fiend stretches his baneful scepter over the sickening land, the whole autumnal season.

Along the Tyber in Italy, and on the flat grounds of Hungary in Germany, where the summers are long, and the heat extreme, bilious remitting fevers are the most fatal in the catalogue of diseases. Holland, which is little better than an extensive morass, though situated so far north, is periodically visited by the bilious fever. It also extends its sway to many parts of England and Ireland. Nor is the continent of North America exempt from its baneful power.

Throughout all the low grounds from Canada to Florida, this distemper infests the country at stated periods.

That the bilious fever is only a variety of the intermitting fever, altered in its aspect and symptoms by climate, season, soil, and the sensible qualities of the atmosphere, &c. is rendered certain, from its prevailing in similar situations and states of the weather in all countries.

Thus, in the low grounds of some of the Provinces of Germany, those fevers which owe their origin to the effluvia derived from a moist and putrid soil, appear in the form of simple tertians, or distinct quotidians, while in Hungary where the ground is more level, and the atmosphere almost motionless for want of hills to conduct the winds, the fever produced by the same exhalations, appears in the form of a remittent, with malignant symptoms and excessive bilious evacuations, which in its progress, unless speedily relieved by nature

ture or art, degenerates into a state of extreme debility, and displays symptoms exactly like those of the most malignant typhus, or putrid fever as it is commonly called, occasioned by contagion.

In Italy, a fever the same in kind, but differing in degree of violence, often appears in the shape of a double tertian, or irregular remittent, and is often attended in its progress with pitechiæ or purple spots, and apthous ulcerations in the mouth and fauces.

In Holland the same occasional or efficient cause, produces a fever with distinct intermissions every, or every third day.

In Ethiopia, and in all that tract of country from Sues to Babel Mondel, it gives the disease the semblance of the pestilence in its most malignant form.

In America, as well as in other countries, the fevers which are occasioned by the air of marshes, or the effluvia of putrefying vegetable or animal substances, are amazingly influenced in their aspect and symptoms, by the soil, situation, climate, season; and by the preceding and present qualities of the atmosphere, and the customary mode of living of the inhabitants.

In the northern states, fevers from the recited cause, are seldom epidemic, though cases of remitting fever are by no means rare in those states, in marshy situations during the autumnal months, but they mostly appear in the form of intermittents. In the middle states remittents with bilious evacuations are very common, but seldom very complicated or malignant, except when the preceding spring and summer have been moist and sultry. Neither dry and hot, or wet and cool summers, have been observed to render this kind of fever either general or malignant: On the contrary, when it does occur after such seasons, it is generally connected with an inflammatory diathesis, and requires blood-letting and purging, repeated as often as the symptoms resume any appearance of violence, as well as the strict observance of the antiphlogistic regimen, to reduce it to its natural and simple form. But in Virginia, North and South Carolina, and Georgia, where the heat is more intense, and the soil more putrid, along
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the shores and ouzy banks of large rivers and ponds of stagnant water, particularly after the rice harvest in September and October, when an extensive surface of moist soil is exposed to the piercing rays of the sun, a fever of the remitting kind is generated, which exhibits symptoms of alarming debility and malignancy; and yet, there is not one instance on record, of this fever however malignant and mortal it may have been to the persons affected by it, ever being contagious, or of having communicated a fever distinguished by the same assemblage of symptoms, from one person to another.

The authorities quoted by Dr. Rush, of its being contagious in other parts of the world, shall be examined in the course of these observations.

From the influence of climate and situation upon the constitutions of the inhabitants, it is reasonable to expect, that a diversity in the treatment of the same disease would be requisite. The suggestions of reason are in this instance, supported by the observations of authors of the most extensive experience and sagacity; among these may be mentioned, Baglivi, Zimmerman, Pringle, Tissot; and of more recent date, Lind, Bruce, and Jackson.

That diseases the same in kind, differing only in degree, require not only a treatment differing in degree, but in kind, we learn from the medical writers of different countries.

Thus we are informed, that the inhabitants of France bear bleeding without injury, and often with evident benefit, in almost every form of fever that occurs there; while in Italy it is thought to do injury in almost every case of fever. Emetics, and other evacuants, agree with the constitutions of the Germans, while sudorifics and cordials suit best to animate and warm the phlegmatic Hollander.

Blisters, volatiles, aromatics and wine, are of use in the remissions of the fevers that prevail in the autumnal season in the south of Europe, as well as in the southern states of America, during every period of the disease. But in the northern states they are seldom admissible,
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till the vigor and tension of the arterial system has been reduced by blood-letting, purging, refrigerating drinks, and abstinence.

Physicians should therefore always compare the climate and soil of the country where an author has been in habits of making his observations, with those of his own, before he submits to be governed by his rules or advice.—Unless he does this, he will be at a loss to know whether the practice of the author he may have occasion to consult, will apply to the diseases where he resides or not.

It also requires great caution as well as discernment, to avoid being misled by the plausible theories of speculative and fanciful authors. For instance, who, after reading in one of those authors, that every fever owes its existence and continuance to a state of debility; that it is aggravated by debilitating powers, and that purgatives of every species are debilitating powers, would venture to employ a medicine of this class, in the cure of any kind of fever? Yet in hot climates, where extreme and constant heat, and a variety of other circumstances, are said to be constantly conspiring to encrease the supposed cause of the disease (debility,) there is nothing more common, nothing more beneficial, than the frequent employment of mild purges in remitting bilious fevers.

Or who that reads, that a convulsive state of the arteries is the proximate cause of every fever, whether, pestilential, typhus, intermittent, or remittent, and that copious blood-letting and purging are the best remedies in one variety of fever arising from the same origin, viz. stimulus with all the other varieties, would hesitate to employ the same remedies without measure or reserve, in every form that can possibly occur.

Intermittent and remittent fevers, as well as fevers accompanied with local affections, are greatly influenced, not only by the climate and soil, but by the season and sensible qualities of the atmosphere.

Sir John Pringle remarks, that “ In Holland towards June, (a healthy month;) Inflammatory fevers begin to recede, and that bilious remitting and malignant
fevers

fevers often succeed, and continue throughout the summer and autumn, until the return of winter, when inflammatory fevers recommence; the seasons and diseases interchanging and running into each other."

Dr. Monro relates, that "The first time he saw much of the remitting fever in Germany, was about the end of June, soon after the army took the field. At that time the remissions were short, and the fever partook much of the nature of the common inflammatory fever, and most of the sick were cured by blood letting, and other antiphlogistic remedies.

"After the middle of June, the fever did not partake near so much of the inflammatory nature as before;—the remissions became much more evident, and it was attended much oftner in the beginning with bilious vomiting and purging, and in some few the disorder turned to a dysentery.

"A few had it changed into a continued putrid fever, from the wards in one of the hospitals being too much crowded—and in some few it terminated in regular agues. In November several were taken ill of the remitting fever in the garrison of Bremen, which mostly ended in a regular intermittent, the endemic distemper of the place."

"In June 1762, the remitting fever began to appear again among the troops at Natzungen, and continued to be frequent through the summer and autumn. The greatest part terminated this year in regular agues, mostly in tertians, and were cured by the bark, whereas the year before, very few terminated this way."

(This is a clear proof of the influence of climate and soil upon the constitution, and of the power of constitution in modifying disease.) "Most of those ill of this fever, had a yellowish colour of the countenance, which went off with the fever; in some more observable than in others; in general it was slight; some few became yellow all over."

Dr. Pringle has also taken notice of this yellowness sometimes occurring in cases of remitting fever, and remarks, that it was found more frequent during the first campaign, than afterwards.

Dr.

Dr. Lind, the most experienced physician of the present age in febrile diseases, relates, that "The years 1765 and 1766, were distinguished by an uncommon appearance of intermitting and remitting fevers in most parts of England, one obvious cause of this was the unusual frequency of the easterly wind, (which contrary to what it is in America is always dry and hot in that climate.)

"The year 1765 was remarkable, not only for the long continuance of easterly winds, but also for an extraordinary degree of heat: In the month of August, the thermometer was often as high as 82° in the middle of the day. This considerable addition of heat, together with the want of refreshing rains, greatly spread this fever, increased its violence, and in many cases changed its form.

"The violence of the fever, with its appearances in an intermitting, remitting, or a continued form, marked as it were the nature of the soil.—In Portsmouth, its symptoms were bad, worse at Kingston, and still more violent and dangerous in a street called the half-way-house, where the situation of the houses are low and damp.

"A constant pain and giddiness of the head, were the most inseparable and distressing symptoms of this disease: some were delirious; and a few vomitted up a quantity of bile, and in all, the countenance was yellow. The universality of this fever, together with its uncommon symptoms, were at first alarming; but when the lancet was withheld, and the bark given plentifully in large doses few died.

"The disease decreased with the heat of the weather, and in the *winter* appeared chiefly in the form of a quartan ague*."

We learn from the Observations of Dr. R. Jackson in his treatise on the Fevers of Jamaica, that the season of the year has considerable effect upon the diathesis of the system, and consequently upon the type, or form of the

* (Lind on Diseases of Hot Climates, Edit. 2d. p. 25.)

the fever, even within the tropics. Thus in the dry season (from December to April) though the remissions are not always more perfect, the type is commonly more simple, and the general diathesis more inflammatory. In the rainy months, remissions are more distinct, but the type is more complicated, and the general diathesis has a strong tendency to putrescency, and often with symptoms of nervous affection. The stomach, bowels and liver, likewise suffer more in this season than in the dryer months of the year. Besides this difference which arises from season, we also find very constant effects from local situation. Thus in hilly districts there is more of the inflammatory diathesis, with more frequent determination to the head and lungs, and less distinct remissions than in flat and champaign countries, where the stomach and biliary system suffer in a remarkable manner."

This effect of season and soil, is still more remarkable in the intermitting or remitting fever of the United States of America. In the spring and beginning of summer, the double tertian or remitting fever, is the most usual type of fever in the marshy tracts, and low grounds, in every part of the Union, and the remissions are short and imperfect.

In the months of August and September, and part of October, quotidians, and fevers with very imperfect and obscure remissions are more prevalent than any other forms or types. As the autumn advances, single tertians and remittents, with inflammatory symptoms become most prevalent.

Besides the changes, produced in the type and symptoms of fevers produced by the air of marshes, or the effluvia of putrefying vegetable substances by the change of season, and the condition of the soil, climate has a considerable effect upon it—For on York-Island, the type is generally, even in the heat of summer, single tertian. In Georgia, the single tertian is the prevailing type only in the winter and spring.

In summer and part of autumn, double tertians are common; and types of a still more complicated kind frequently make their appearance in certain situations
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of all the southern states. Dysentery, dropsy, and fever, accompanied with malignant symptoms, are likewise more frequent in the southern, than in the eastern or middle states; and the course of the fever in the former in general, is more certainly checked in its early stage by the Peruvian bark, than in the latter.

Virginia lies about half way between New-York and Savannah, and the general effects of its climate on the common endemic of the country, corresponds in a great measure with its local situation. Deviations from the tertian type are more frequent here than in New-York, but less so than in Georgia.

SPORADIC CASES of remitting fever occur at Philadelphia, in the spring, and early part of summer. During those seasons, they are generally accompanied with inflammatory symptoms, and the remissions are very imperfect and obscure for the first three or four days, after which they become more evident, and in a few days more, unless prevented by improper treatment or conduct, change to complete intermittents, which are readily removed by the use of the bark.

In the cases which occur in the vernal and summer seasons, bilious symptoms are seldom observable, except at the accession of the fever, or with those symptoms which usher it in.

Nausea and occasional puking, are common at the accession of every species of fever, whether inflammatory, nervous, or intermitting: Under these circumstances more or less bile is generally ejected, but as this is merely the effect, and not the cause of the vomiting, and as the evacuation of bile in any form or variety of remitting fever, is only a symptom, and not a cause of the disease, there is no propriety in naming the fever bilious, in which it only occasionally and under particular, or accidental circumstances becomes a predominant symptom. With the same propriety it might be denominated inflammatory in those cases where the pulse is strong and quick, the skin hot and dry during

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the exacerbations, though the remissions be regular and distinct.

In both forms the fever is derived from the same occasional cause, miasmata, operating on constitutions, differing only in diathesis.

The paroxisms of pure intermitting fevers are always finished in less than twenty-four hours;—so likewise in remitting fevers, though the hot and sweating stages of the paroxism do not entirely cease before the expiration of twenty-four hours from the accession of each paroxism; they always suffer before that time, a considerable abatement or remission of their violence; and at the same period every day, or every other day, a paroxism is in some shape renewed, which runs the same course as before.

When it happens, and in certain circumstances this is often the case, especially in an advanced state of this fever, that the remission is imperfect, is perhaps without sensible perspiration, and that the returning paroxism is not marked by the most usual symptoms of a cold stage, but chiefly by the aggravation or exacerbation of a hot stage, it is difficult to distinguish the disease from that species of fever denominated typhus, occasioned by contagion, or human effluvia.—But if these have passed from an intermitting or remitting form, to that of a continued one, and still shew some tendency to become intermittent once a-day, or at least every second day, and there is no foundation to suspect exposure to contagion or human effluvia, and if they have but one paroxism in the course of twenty-four hours, they certainly ought to be considered and treated as remittents. For “Continued fevers which arise from contagion, shew little tendency to become intermittent or remittent, in any part of their course, and especially after the first week of their continuance, and have pretty constantly an exacerbation, and remission twice in the course of every twenty-four hours.”*

* Cullens Practice of Physic, p. 73d, sect. 29, published by Rotherham with notes in 1791.

Two circumstances diametrically opposite in their nature, appear to occasion the remitting fever, to assume a continued form, viz. a phlogistic diathesis, and a defect of power in both the nervous, and vascular systems. — In the one state, the actions produced in the circulating vessels are preternaturally strong and quick, in the other they are preternaturally weak and irregular.

Inflammatory topical affections are very apt to occur during the season when remittents and intermittents are prevalent, upon any sudden change of weather to a colder state; particularly after rain has continued for three or four days, which is very common at, or soon after the autumnal equinox. In these cases, the remissions of pain and fever are more observable every morning, than when they occur in winter or spring; which evinces that they are either connected with the cause of common intermittents, or that the constitutions of people are disposed, at that season to take on an intermittent or remittent form, notwithstanding the presence of the stimulus of inflammation.

When the small pox becomes prevalent, either in the natural way or by inoculation at the same season, the fever with which it is accompanied frequently assumes the remittent form. And even the malignant yellow fever which prevailed in 1793, did the same in numerous instances, though it had few symptoms in other respects like those of a common remittent, and differed from it essentially in its origin, nature, cause, and manner of attack.

The celebrated Sydenham (who, by the by, was a very erroneous philosopher) misled by vague and erroneous notions, respecting influential constitutions of the atmosphere (which he ascribed to some secret and inexplicable alteration in the bowels of the earth, or to the influence of the planets;*) held an opinion that the reverse of what I have assigned, took place when the small

* See his Letter to Dr. Goodall, in his whole works translated by Swan, 3d. Edit. page 547.—In which he gives an account of the rise of a new fever.

small pox or plague prevailed: "For these," says he, "either banished all other diseases, or compelled them to wear their livery; that is, they assumed their type, and leading symptoms, and required the same kind of treatment:—An opinion totally incompatible with facts and later observations. An author of more modern date, from confounding epidemics derived from contagion, with those from season, and soil, has also fallen into the same error."

It has been, and is still the opinion of several physicians of respectability, not only in Philadelphia, but also in Baltimore, New York, and Boston, that the contagious yellow fever which has prevailed during the summer and autumnal months, in several of the seaport towns of America, since the year 179 , is the same in kind, differing only in degree with the common bilious remittent; and because the season was dry, and uniformly warm when it prevailed at Philadelphia in 1793; its contagious quality was ascribed to that cause, and when it prevailed at New York in 1795, because the weather was remarkably wet at that time, it was as preposterously ascribed to that circumstance.

It is not only rational to suppose, but many facts favour the opinion, that when no other disease appears in the place where a contagious disease prevails, that the season or sensible qualities of the air, or exhalations from the soil at that time, are not favourable to the generation of the diseases usually endemic at that season. It is impossible that the contagion should have the effect of banishing them, as it can have no effect upon the quality of the air, to any extent from the bodies of those with the disease. Facts relative to the state of the weather at New York in the autumn of 1795, and at Philadelphia the present year, viz. 1797, which were wetter and cooler than many preceding seasons had been, as well as those contained in almost every modern medical author, establish this.

It is merely owing to a change in the sensible qualities of the air, or to the removal of the various effluvia, or impurities with which it is occasionally mixed, that one epidemic succeeds or takes place of another,
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and not to the influence of one epidemic over another. For example: In the warm and impure air of autumn, when intermittents prevail, pleurifies are rare, but on the approach of winter the intermittents decline, and pleurifies increase. Is this owing to the influence of the one disease over the other, or is it owing to a change in the sensible qualities of the air? That febrile diseases derived from contagion, and those from marsh effluvia, often prevail in the same place, and at the same time, is known to every person acquainted with medical history. Even Sydenham has recorded instances, (though they contradict his doctrine of occult causes) of several diseases different in kind, being epidemic in the same place at the same time*. Change of season always banishes some kinds of disease, and favours the generation and propagation of others. This is so simple and obvious, that none but a man wedded to the most extravagant theory, would have looked into the bowels of the earth, or up to the stars for the cause.

When however I reflect that philosophy was only beginning to emerge from gothic darkness, in which it had long been sunk, at the time Sydenham published his observations; I am willing to make due allowance for his errors:—But the present æra, when philosophy has arrived at a state of improvement, which approaches to perfection, such errors are not entitled to the same toleration.

I shall now transcribe a few remarks from other authorities, which will remove every doubt, that two contagious diseases, different in kind, may prevail in the same place at the same time. Examples of this kind are mentioned by the experienced Dr. Lind, in his *Observations on the Diseases incidental to Europeans in Hot Climates*, page 126, 5th Edit: And Russel on the *Plague*, at page 24 and 48, relates that the remitting fever prevailed at Aleppo in August 1760, when the
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* See his *Account of the Epidemic Constitution of 1670*, 71, and 72, at page 142, Edit. 3d. translated by Swan.

plague was on the decline, and in November 1761, the plague and the small pox prevailed there at the same time.

Mertins in his History of the plague at Moscow in 1771, at page 186 gives similar examples.

Dr. Maximillian Plinta has published an Account of the Scarlet Fever and Hooping Cough, being prevalent at Elangen in the year 1790, at the same time with an epidemic small pox. Diseases of various description also came under the notice of several physicians in Philadelphia, during the prevalence of the malignant yellow fever in 1797. Several cases of small pox came under the care of Dr. Deveze, and Dr. Duffield, at Bush Hill hospital, which were sent out of the city previous to the eruption, from suspicion of their having the malignant yellow fever.

Several cases of the same kind came under my own notice: A Mr. Quinton from New England, died of the small pox, at Mrs. Newark's in Spruce street at the time, when two of her other lodgers had the yellow fever.—Several cases of quotidian and tertians came under my care in different parts of the city, and in the suburbs, where the contagion never reached.

The same disease prevailed in the summer and part of the autumn of 1794, at Fell's Point, adjoining Baltimore; at which time the small pox also became epidemic, as appears by the report of the Committee of Health, and a letter from Dr. Buchannan, dated October the 11th, 1794, published in the Gazette of the U. S. October, 6th 1794.

Dr. Monfon, in his account of the yellow fever which prevailed at New Haven in 1794, says the scarletina prevailed at the same time, and that a greater number of persons were affected with the scarletina, than with the yellow fever; see his letter to Noah Webster, Esq. page 179 of Webster's Collection on Bilious Fevers.

In the present year also, I saw several cases of scarlet fever, and of the small pox, in the same part of the city where the malignant fever was most prevalent, and one case of the latter, in the same chamber with two other patients, ill of the malignant fever.

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From this statement it appears, that all that can with propriety be understood by an epidemic constitution of the atmosphere, is, that it is rendered more capable of retaining miasmatic effluvia and contagious matters, at one time than another, or that it renders the human body more susceptible of contagious, as well as more liable to febrile diseases from other exciting causes, at one time than another. From the facts on record respecting the plague, it appears that a certain range of temperature is requisite for the contagion, by which it is propagated, to operate : Hence it would appear that the pestilential contagion is attached to, and rendered volatile to a certain extent, by a certain quantity of caloric or matter of heat, or is attenuated and diffused by the action of sensible heat, like water converted into vapour, so as to be specifically lighter than the air near the surface of the ground. This opinion appears to be confirmed, from the effects of excessive heat, as well as by those of frost : The one rendering it more light and volatile, so as to rise too high to have any effect ; the other detaching the caloric, and letting the contagious particles fall to the ground, &c.

Whether the effluvia with which the atmosphere of cities is occasionally replenished from the various sources of nature, and art, can have the effect of rendering any kind of contagion more active and deleterious, or not, I am not prepared to determine ; but it is reasonable to suppose a circumstance of this kind, by diminishing the purity of the atmosphere, renders it sooner saturated with the contagious particles, and cannot fail of rendering the human body more easily affected, and the disease more dangerous when it does take place.*

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* The kind of atmosphere, according to Mead, most favourable to the propagation of pestilential fevers, is that which is hot, moist and calm.—But from recent observations, it appears, that the contagion of the yellow fever is most active in the month of September, when the temperature of the air in the middle of the day, generally ranges between 60° and 80°, and is about 10° lower every morning and evening : This inequality in the temperature rendering the human body exceedingly irritable, and liable to be affected, not only by contagion, but by marsh miasmata.

This explanation of epidemic constitutions of the air, being less visionary than that of Dr. Sydenham, and supported by a greater number of facts, and observations, is the one I have adopted, and the one that I recommend to the attentive examination of the reader.

It has become fashionable in this city, to call every fever bilious, that occurs in the summer and autumn, whether accompanied with a preternatural secretion and effusion of bile or not. This is certainly very objectionable, as it has a tendency to mislead, all who are governed by names, instead of the symptoms of diseases; nausea and some puking sometimes occur at the accession of every kind, or variety of fever, and more or less bile is at that time generally evacuated; but as this is merely the effect of the cold stage of the fever, and the condition of the system at that time, and not the cause of the fever; the impropriety of denominating it from that circumstance must be obvious, especially, as that is not a constant, but accidental symptom of the fever. On the other hand, if it be denominated a phlogistic or asthenic remittent, according to the diathesis designated by the symptoms, the young practitioner, will not be so liable to mistake the true indications, and will employ those means warranted by the experience of ages, for the reduction of excessive action, or the support of declining strength, as symptoms may indicate.

OF THE CAUSES
OF
BILIOUS FEVERS.

FROM the numerous observations which have been made in different quarters of the world, there can be no doubt, that the cause of the fevers under consideration, is a miasma or exhalation, which issues from a marshy or putrid soil, or from putrefying vegetable and animal substances. The similarity in the season, situation, and soil, in the different countries and districts in which these kind of fevers prevail, and especially the time of the year in which they are most epidemic and dangerous, concur in proving that however symptoms may vary in different situations and constitutions, they arise from one common cause, and that cause is miasma.

This miasma is supposed to partake of the nature of the putrid source from whence it is derived, but whatever its nature may be, it exists in the atmosphere over the soil or putrefying substances, from whence it arises in various quantities, and perhaps degrees of strength, according to the climate, season, temperature of the air, and quantity of putrid matter. Hence in temperate climates in the hot season, it is in less quantity or in less strength, than in hotter climates with a similar soil. In hot climates also, the heat and impurity of the air, favours its operation, by inducing debility and preternatural irritability in the animal system. In temperate climates the difference between the temperature of

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the air of the days and nights, render the body more especially liable to be affected by febrile miasmata.

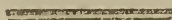
Why these miasmata when diffused abroad in the atmosphere of marshy districts, do not produce fever in all the inhabitants within the sphere of its influence, or why some are affected by it much later than others, can only be explained by supposing that it can only operate on relaxed, infirm, or debilitated constitutions, and that some debilitating cause must conspire with it, before it can produce any morbid effect in vigorous and robust constitutions. This appears to be confirmed by its effects on the emigrants from Ireland, which generally arrive in this country the beginning of August. Very few are affected with either the remitting or intermitting fever the first season, though numbers are with the dysentery, whereas very few of those that take up their residence in the suburbs of Philadelphia, escape it the second or third season after their arrival: but many are affected the first season of their arrival with inflammatory fever, especially if the season be dry and hot,—if wet and cool, the dysentery. This is also the case with persons who come to reside in the city, from the western and hilly parts of Pennsylvania.

Mud and stagnant water in every climate, possess the materials which give origin to the cause of this species of disease; but a combination of other circumstances is requisite to give it activity. Among the principal of the circumstances which give activity to this cause, may be reckoned the influence of a powerful sun. Hence some situations, which in the winter season are distinguished for no particular disease, are observed in the hot months to be most remarkably unhealthful.

There are few men whose observations are so circumscribed, as not to know, that it is in the neighbourhood of swamps, mill-dams, and near the shores of fresh water rivers, that intermittents and remittents chiefly prevail; yet it deserves likewise to be remarked, that though a fever of one of these forms is most prevalent in such situations, no champaign or level country is entirely exempt from them, especially when wet summers are succeeded by dry and sultry autumns.

Fresh

Fresh cleared land in level countries, is rendered much more unhealthful for some time, than when covered with wood. The reason is obvious; the wood not only stops the progress of noxious vapours carried from a distance, but it also covers and protects the ground from the immediate action of the sun; in doing which it more than counterbalances the less free circulation of the air, or the greater dampness of the ground. Hence no opinion is more erroneous, than that the clearing a country of its woods, renders it healthful. Unless the grounds be drained and cultivated as well as cleared, the effect is likely to be the reverse.



*FEBRILE MIASMATA Conveyed through the AIR
to a considerable Distance.*

IT would be a matter of utility could we determine with certainty to what distance from their source, the noxious effluvia of marshes extend. But this is a question which we can not expect to ascertain with precision. It is not uniformly the same in all situations, depending perhaps on the concentrated state of the exhalation, at its source, the obstacles it meets with in its progress, and the nature of the ground over which it passes, or to which it is directed. Dr. Jackson relates, that he has known their influence very remarkable at the distance of a mile and a half, on the top of an hill of very considerable elevation. (p. 412.)

The same author, as well as the experienced Lind, late physician to Haslar Hospital, remarks, that a space of time almost constantly intervenes, after exposure to the noxious effluvia of marshes, before the subsequent appearance of fever. "This is not uniformly the same in all persons, owing sometimes perhaps to the state of concentration, in which the exhalation is applied to the body, or to the peculiar aptitude of the individual, to favour or resist its operation."—Both the last mentioned authors agree, that the fever seldom attacks in less than seven days

days after exposure to the noxious effluvia, and Dr. Jackson says, that he oftner observed it to attack fourteen days after such exposure. (p. 415.)

The nature of this cause of fever, though it has long been a subject of enquiry remains still unknown.

From the greater violence of the fever produced by it, as well as the complexety, and often malignity of its symptoms in soils the most putrid, during the autumnal season, we infer that the exhalation is in the largest quantity, and has acquired a greater degree of power, or that the atmosphere with which it is mixed, is by some means deprived of its correcting power. But we have hitherto been able to proceed no farther, notwithstanding the aids which modern chemistry has furnished.

It has been supposed, (and the supposition was adopted by the celebrated Dr. Cullen,) to possess a *Sceptic Principle*, but this alone is by no means sufficient, to account for the very peculiar manner in which it affects the human race. Some other quality perhaps is therefore connected with it, which cannot be brought under the inspection of our senses. But though the ingenuity of the human mind, has not hitherto been able to penetrate the intimate nature of this cause of fever, we still have it in our power to trace its effects upon the human constitution.

We plainly perceive that a habitual exposure to it, is peculiarly unfriendly to the *principle of life*, and in a very remarkable manner, shortens the period of existence. Hence, as recorded by Dr. Jackson, while females born, and constantly residing in the the low lands of Georgia, have seldom been observed to live beyond the age of forty, males seldom exceed fifty, whereas Europeans or Americans from the northern states, who had arrived at manhood before they settled there, have sometimes lived to a very advanced age, though the majority of new settlers have died, of what is called a seasoning to the climate, the first or second year after their arrival.

Though these and other instances which will occur to every ones recollection, afford sufficient proofs of the
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noxious quality and power of marsh effluvia, yet we are by no means instructed as to the manner by which it becomes so. It will therefore profit but little, to prosecute the subject any farther.

Certain limits are unquestionably prescribed to human researches, on the present subject, beyond which, though fancy may take its flight, and theory make wide excursions, all is conjecture, obscurity, or profound darkness.

Floods of rain, by diluting and precipitating putrid exhalation, relieve from the remitting bilious fevers, common to marshy situations; but rain has no effect upon the yellow fever, except when joined with cold, or succeeded by frost.

1. IS THE BILIOUS FEVER, OR ANY OTHER VARIETY OF THE REMITTING FEVER OCCASIONED BY MARSH MIASMATA, OR THE EXHALATIONS FROM PUTRID, OR PUTREFYING VEGETABLES EVER CONTAGIOUS?
2. AND WAS THE YELLOW FEVER, WHICH OCCASIONED SUCH DEPLORABLE MORTALITY IN PHILADELPHIA, IN THE SUMMER AND AUTUMN OF 1793, AND WHICH HAS APPEARED IN OTHER SEA-PORT TOWNS IN THE UNITED STATES OF AMERICA SINCE THAT PERIOD, ONLY A HIGHER GRADE OF THE BILIOUS FEVER, GENERATED BY THE SAME CAUSES?

These are questions highly interesting to the inhabitants of this country, and as physicians of considerable respectability differ in opinion respecting them, and the public mind has been much distracted by the discordant opinions which have been published on the subject; a desire of reconciling this difference, and of clearing it from the ambiguity in which different views have involved it, has induced me to undertake the troublesome task of collecting the sentiments and opinions of the most experienced writers on the subject, and is now my motive for submitting them to the inspection of the public.

To

To these I have added a variety of remarks and explanatory notes.

How far these are calculated to determine those interesting questions, must be submitted to the judgment of judicious and impartial enquirers.

AN

AN EXAMINATION
OF THE
EVIDENCES RESPECTING THE
CONTAGIOUS NATURE OF
INTERMITTENT & REMITTENT
FEVERS.

IT has been said that it is scarcely possible to open a practical book on medical subjects, without meeting with facts which establish the opinion, that fevers occasioned by the exhalations from putrid vegetables are contagious. The fevers generated by putrid cabbage, mentioned by Dr. Rodgers, and by putrid flax mentioned by Dr. Zimmermann, were both of them contagious. Lancisi, Reverius, Bianchi, Cleghorn, Lind of Windsor, and Clark, have also been quoted in support of this opinion.—All of which shall be noticed in the sequel.

That Dr. Rodgers of Cork, was deceived with respect to the origin of the fever which broke out at Wadham College, is rendered more than probable by the observations of the celebrated Lind of Haffar Hospital. This author informs us in his Essay on Fevers and Infection, page 290, that almost all the cases of fever which occur at academies and boarding-schools are derived from infection; and that most cases of low fever which occur in private families are derived from the same source. Dr. Cullen has expressed a similar opinion, which has been adopted by Robertson, Clark, Ferrar, and a numerous host of authors of the first rate abilities.

Dr.

Dr. Zimmerman appears to have confounded epidemic with contagious diseases; nor should this be thought extraordinary, for notwithstanding his abilities and character, he has been frequently mistaken in his opinion respecting the remote causes of other diseases. Among other mistakes, he says the scurvy is propagated by contagion,* and that putrid fevers are occasioned by the exhalations from putrid animal substances, and the plague at Grand Cairo, by the stench from swarms of dead and putrid grasshoppers and locusts.†

Lancisi who was physician to Pope Clement XI. was so much mistaken in the real causes of diseases, that he ascribed the pestilence which prevailed more or less at Grand Cairo annually, to the effluvia of hemp and flax, which happened to be stored in granaries near that city, at a time when the disease was more general than usual; he has also ascribed a fever which depopulated one end of Rome, to the putrid effluvia from *horses litter* or stable dung.‡

That the plague never originates in that way, but is derived from specific contagion, generated in the cities of the East, is clearly shown in Mead's Short Discourse on the Plague, published in the year 1721, and in Russel's treatise on the same, published in the year 1791. The other opinion of Lancisi, viz. that one end of Rome was depopulated by a fever, which originated from the putrid effluvia of horses litter, &c. Professor Rush has refuted in the 2nd Vol. of the American Philosophical Transactions, page 211 and 212: These are his words. "Ossal matters, especially those which are of a vegetable nature, should be removed from the neighbour-

* Experience in Physic, page 125 of Vol. 2nd.

† Mead on the Plague, says it originates from heat and moisture, acting on dead animal matter, which is also erroneous. In the last, says he, it can be generated in this manner, but not in the temperate climates of Europe. If that were the case the disease would be propagated by the atmosphere, to a certain extent, to numbers at once, and not from one to another in succession.

‡ Vol. 1st. page 350.

neighbourhood of a dwelling house. The *dung of domestic animals*, during its progress towards manure, may be excepted from this *direction*. Nature which made man and these *animals* equally necessary to each others subsistence, has kindly prevented any inconvenience from their living together. On the contrary, to repay the husbandman for affording shelter to these *useful* and *helpless* animals; nature has done more: She has endowed their dung with a power of destroying the effects of marsh exhalations, and of preventing fevers. The miserable cottagers in Europe who live under the same roof, and in some instances in the same room with their cattle are always healthy.* In Philadelphia, fevers are less known in the neighbourhood of livery stables, than in any other part of the city. I could mention a family that has lived near thirty years near a livery stable, in a sickly part of the city, that has never known a fever but from the small pox or measles."

Dr. Zimmerman has indeed said, that "the effluvia from a little heap of flax has been known to occasion a malignant fever, which proved fatal to the family in which it began, and afterwards spread its contagion through a whole country." But it does not appear from this paragraph, whether he meant that the exhalation from the flax, or the fever from the family spread its contagion through a whole country. This can only be determined by reference to the original, which I have not had an opportunity of examining, and it is seldom that a translation conveys the precise meaning of the author. He has not mentioned whether the disease, which he says was occasioned by the exhalations from the putrid flax, attacked a number at the same time, or in succession, as they came within the sphere of contagion, that is within six or eight feet of the patient, for it has been ascertained by Dr. Haygath of Chester, that even the contagion of the small pox is

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innocuous

* Is this owing to the dung of those animals, or to the purity of the air from other sources, counteracting or destroying the putrescent quality of these exhalations?

innocuous at that distance, where a free circulation of air is preserved.

If the facts mentioned by Dr. Zimmerman were true, the human race might literally work out their salvation with fear and trembling, since none of woman born, could possibly survive one hot summer; for although, “a little heap of putrid flax,” should be wanting, there are always apples rotting on the ground, putrid cabbage in the garden, turnips, potatoes, onions, or other vegetables in vaults or cellars,—and bilge water on shipboard.

As to Dr. Rogers it appears evident that he did not know the difference between contagious, and epidemic diseases, for he has ascribed the former to causes which can only produce epidemics or sporadics, and not contagious ones. The fevers which prevailed annually at Cork, he says were owing to the exhalations of the putrid blood from the slaughter-houses, particularly after the summer rains; whereas it is well known (for it has been often observed) that such diseases are common in all damp situations in the autumnal season, where there are no slaughter-houses. The healthiness of the generality of butcher’s families, is opposed to his opinion, as well as the healthiness of the manufacturers of starch and indigo, where vegetable putrefaction greatly abounds, is to that of vegetable putrefaction occasioning malignant, much less contagious fevers in situations open to the free introduction of the surrounding air. Unreflecting credulity,—like Shakespear’s Glendower, is always ready to ascribe simple events to extraordinary causes. At my birth, says Glendower, strange phænomena appeared; comets, eclipses, and rocking of the firmament. Percy to ridicule his vain credulity and self-sufficiency, answers, that all these phænomena might also have happened at the birth of a kitten: Meaning that there could be no connection between such phænomena, and the birth of mortals. Physicians are too often apt to attribute the cause of things to some circumstance most obvious to their senses, or to some remarkable circumstance in, or phænomenon which accompanies or preceeds any disease;

disease; and for want of tracing all the circumstances to their source, mistake effects or coincidents for causes. Thus in the year 1699, when the yellow fever ceased upon the coming on of frost, because Roger Gill a preacher had offered himself some time before, as a sacrifice for the people, and soon after died, with others exposed to the contagion, it was generally ascribed to a special interposition of Providence, instead of being ascribed to the effect of frost, which was the physical cause of its suppression. I once saw a bodkin thrust through a hen's head, some of the balsam of Riga was applied, the hen walked about soon after, and appeared to recover by the virtue of that balsam. Another hen with a bodkin thrust through her head, to which no balsam was applied, did the same and detected the cheat.

A medical professor, says, that Dr. Lind ascribes the yellow fever to vegetable exhalations, but I can find no such sentiment in any of Lind's works. His words are (in his *Treatise of Diseases of Hot Climates*, page 119—5th Edition.) This fever in general proceeds from intense heat, and a peculiar unhealthfulness of the air, but he does not say how that unhealthfulness of the air is produced. What he has said respecting the effects of unwholesome air at Greenwich hospital in Jamaica, has no other reference to the subject, than that every kind of fever is aggravated by such air, page 179, 5th Edition. The fact is, that Dr. Lind was not acquainted with the source of this fever, but mistook it for a higher grade of the bilious remittent fever, rendered so by a peculiar unwholesomeness of the air; but unluckily for these opinions, there are no instances of a bilious fever becoming contagious, nor one authentic instance where the disease under consideration ever occurred in any state of the atmosphere, without the concurrence of specific contagion.—For proof of this, I refer to the facts contained in Hillary's *Diseases of Barbadoes*, not to his speculative opinions; Gough's *History of the Friends*; to Dr. Mitchel's *Letter to Dr. Franklin*; to Lind on *Infection*; to Lin-
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ings Account of its several occurrences at Charleston, in 1732, 1739—45 and—48, where it was each time traced to importation, and when some of the seasons in which it occurred, were both cooler and wetter than many which had intervened, or preceded them. The fact is, Lind knew nothing about the disease but from the report of others, otherwise he would not have published an extract of a letter from Dr. N. Smith to oppose the opinion of its being contagious. (See his Essay on the means of preserving the health of seamen, &c.) If Lind was right in his opinion, the disease he speaks of could not be the same as the one which prevailed in the West India Islands, as well as in Philadelphia, in 1793; for it was highly contagious in both places. And in the West Indies affected the natives, as well as foreigners. Notwithstanding the positive manner in which the other, Dr. Lind, (now of Windsor) who was surgeon to a little sloop of war, in the service of the East India Company, has decided on the question, his opportunities were too unfavourable, and his observations too limited to determine a question of this nature.

Dr. Cleghorn has said, that tertians have as good a right to be called contagious, as the measles or small pox, but as he has not mentioned any facts in support of his assertion, it can only be considered as mere matter of opinion, derived perhaps from hearsay, or the *Ipse dixit* of some professor learned in antient error.

It would be mere waste of time, to employ my pen against such authors as Riverius and Bianchi. Works published when fair science was only beginning to dawn, claim compassion.

But Dr. Clark is a champion in the cause of contagion, over whom a victory would be honourable.

This author asserts that every form and variety of fever belongs to the same genus, and is occasioned by one and the same cause, viz. contagion, and that every form and variety is more or less contagious according to the situation, state of the atmosphere, and the constitution

tution of the person exposed to the exciting cause of the disease. Yet he acknowledges that, "They are seldom contagious, except when the air in the apartment of the sick, is saturated with animal effluvia."*

To prove the contagious power of remittents and intermittents, he mentions the following particulars.

"The Grenville Indiaman which touched at the Island of Java, suffered greatly from the malignity of the air. A few were taken on board when the ship sailed from *Batavia* ill of a malignant fever, which spread by contagion at sea, and carried off great numbers. I visited several (adds our author,) when she arrived at China, who were reduced to mere skeletons by the duration of the fever and the dysentery, both of which were most certainly propagated by contagion."

From Dr. Clark's mentioning his having visited several in this ship, after her arrival at *China*, it appears that he was not on board of her at the time he says "the disease spread by contagion at sea," of course he could not determine with certainty, whether the disease was contagious or not.

Dr. Lind on Diseases of Hot Climates, says, "a person may be attacked by a fever several days after exposure to the exhalations of marshy grounds. From comparing many instances of people, who have slept on shore during the sickly season, and which *alone* have been taken ill out of the whole ships company, then lying in an open road, it appears that some are immediately seized with sickness or delirium, many are not seized with any complaint till they have been on board for two or three days; several have been only slightly indisposed for the first five or six days; and in a few the symptoms of indisposition have not appeared before the tenth or twelfth day.† Hence the effects of the injury

* Treatise on Diseases in long Voyages, &c. Vol. 2d. Edit. 2d.

† Diseases of Hot Climates, p. 182. Edition 5th.

jury received on shore from land air, may not appear till some time after the ship has been at sea,* or a contagion may be generated even at sea, from causes which it is sometimes difficult to ascertain."

Dr. R. Jackson in his late Treatise on the intermitting fever of America, assures us that fevers produced by the air of marshes, (or the exhalations from putrid vegetable *substances*) seldom if ever make their attack in less than seven days after such exposure, and that some have been as long even as twenty days after such exposure, before the was fever completely formed.

To support the opinion which he appears to have adopted from Dr. Cleghorn, that common intermittents are contagious; Dr. Clark informs us, that an *old lady* with the palsy, who lived up three pair of stairs, in a situation where no marsh miasmata could reach her, was attacked with an ague, and as there was no source of marsh miasma, from whence it could have originated it must have been occasioned by contagion. But from whom she received the contagion he has not said.

From this case it appears that Dr. Clark thought, no case of *ague* could take place in any situation, or from any circumstance, unless the person affected had been previously exposed to marsh exhalation, or to the effluvia of a person labouring under the disease. A mistake which is unpardonable in an author, who pretends to write for the instruction of others.

The fact however is very different from what Dr. Clark has supposed, for there are a multiplicity of observations upon record, which as well as my own observations, convince me that intermittents often occur in *situations* excluded both from marshes and sick *persons*,

* And as all the Patients after such exposure, are not attacked at the same time, but in succession, physicians are apt to be deceived, and to suppose it contagious when it is not so.—And as a contagious fever is frequently generated at sea from the confined air of neglected holds, and the effluvia from animal bodies, it is difficult to determine whether the diseases which occur on board, arise from impure land air, or from contagion generated in the ship.

sons, where patients, after being debilitated by any acute disease, fall into regular intermittents from exposure to the night air, when the dews are copious, or after a sudden change of weather from dry and hot to wet and cold.—Perhaps this was the case with Dr. Clark's patient who was debilitated by a chronic disease. We are also told by Dr. Clark, that a decrepid and infirm gentleman, and his servant maid were both attacked by an intermittent, for which no cause could be assigned, but the visit of another maid servant from the country. He knew a child take the ague from being much conversant with a person troubled with that disease—"And a man from only visiting a friend while sweating in a tertian." Since the year 1788, adds Dr. Clark, "I have seen six instances of agues communicated from one to another by contagion in the wards of the infirmary at New-Castle."

These may appear unequivocal proofs of the contagious nature of intermittent and remittent fevers, to persons not aware of the changes which the state of the mind, the situation of place, and the change of living, as well as the propensity to imitation, (which prevails in most diseases attended with nervous symptoms,) have upon the human body.

Here Dr. Chalmers observes for me, that when one person in a family sickens, and the disease cannot be removed in a few days, there is nothing more common than for some of the attendants to be affected in the same way; this gives an alarm to the neighbours, who conclude that the disease is contagious, though in general, there is nothing more foreign from the truth—for it is generally owing to the similarity of the constitutions which now prevails in consequence of climate and season, and to greater exposure than ordinary to the prevailing causes. This is particularly the case with nurses and other attendants who are deprived of their customary rest and food, when they expose themselves abroad after being debilitated by confinement in the warmer and more impure air of a sick-room.

From

From comparing that fever called by Dr. Clark* a remittent, and which Sennertus says began in Hungary and spread by contagion over Germany, with the camp fever described by Sir John Pringle, the hospital fever of Donnalld Monro, the jail and ship fever of Lind, Roupe, Blane, Robertson, &c. and with the fever which prevailed in some of the American hospitals, and British prison ships in the years 1776, 1777, and 1778, &c. I am convinced that it was a typhus, or a continued fever of a putrid tendency which originates from animal effluvia in a certain situation, and was propagated by contagion, and was not a genuine remittent, or any fever that was derived from the exhalations of vegetable putrefaction.

Dr. Ferriar, to whom in abilities and medical acquirements few are superior, entertains an opinion that “all infectious animal *poisons*, that of the hydrophobia excepted, are formed originally from some morbid process in the living human body.”

“It is true the putrefaction of dead bodies generates a *poison*, which is highly *noxious* when received into the human body by a wound, or any raw surface; but this poison does not seem to infect like that of fevers by exhalation. Its first effect unlike the other, is to occasion the death of the part where it is admitted.†”

“Noxious effluvia indeed frequently arise from *putrefying animal substances* in a *certain state*. Dr. Monro mentions a remarkable instance of this in his *Treatise on the Dropsy*, and some later examples are recorded by Mr. St. John. But it does not appear from these cases, that the *noxious effluvia* produced any *symptoms resembling those of putrid or pestilential fevers*; on the contrary they acted by a *direct stimulus*, occasioning inflammatory complaints, from which we may conclude that they are essentially different from febrile *contagion*.‡”

It

* Dr. Clark and Dr. Millar of London, have both confounded the remittent, from the exhalations of vegetable putrefaction with the continued fever and jails and hospitals.

+ See Dr. Alexanders Experiments also.

‡ Ferriar's Medical Cases and Reflections, page 220, &c.

It is now generally admitted (for it has been established by accurate and repeated observations) that the effluvia from the living human body in certain situations, whether affected by fever or not, become a poison capable of producing a disease in a healthy body which has the power of propagating its likeness to others, either from contact or near approach, or by means of other substances, which have been within the reach of the exhalations from the body of the sick.

If it were admitted, that a solitary example or two, have occurred of a fever occasioned by the exhalations of putrid vegetable substances, occasioning a fever to those who attended the sick, and from them to others, it will serve very little towards determining the question, unless it can be made appear, that the fever thus propagated, was marked by the characteristic symptoms of either an intermittent or remittent, only diversified by season and constitution, &c.—For before any thing can be with certainty admitted as the efficient cause of an effect, that cause must not be occasionally, but constantly present whenever that effect is produced.

Though I believe the circumstances which I have already stated, and the arguments which I have advanced, are sufficient to convince every impartial enquirer, that the doctrine of the contagious nature of intermittent and remitting fever's, so long as they retain their genuine type or character, is erroneous; yet lest any doubt on the subject should remain, I will now proceed to detail the observations and opinions of a few authors of the highest credit, and most ample experience.

Baglivi, (who united great sagacity and indefatigable industry, with sound judgment,) published his Observations on the prevailing Diseases of Rome in the year 1696, in which he informs us, that remittents were endemic and exceedingly malignant during the summer and autumnal months along the shores of the Tiber, and the low grounds of the antient Latium, which was in a manner a desert, overrun with impurities, and that in several parts, particularly about *Qstia* and *Porta*, the air was so unwholesome, that if any citizen went out and remained there all night, and then

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returned

returned to town, he was soon after seized with a dangerous fever, commonly called “the *Bad Air Fever*.” This fever differed very much both in its symptoms, and method of cure from the fevers that spring from other causes.—It was relieved by blisters and cordial medicines, but aggravated by blood-letting, &c. Baglivi however had no suspicion of its being contagious, otherwise he would have mentioned it.

Baron Vanswieten tells us, that “double tertians, which imitate continued fevers, and which are often epidemical are not contagious, though they are often attended with exanthemata, gangrenous blotches on the surface of the body, swellings of the parotids and other symptoms of malignity.” This he exemplifies by an account of the epidemic fever of 1756, occasioned by the noxious effluvia of marshes. “Many visited the sick at different times; and many of the sick were removed to families in health at some distance from the sphere of the effluvia, and not an instance occurred of its being communicated by contagion.”*

The celebrated Lind has given an account of a remitting bilious fever, which was very epidemic and malignant in several parts of England in the autumn of 1765, accompanied in many cases with yellowness of the eyes and skin; but instead of imputing it to contagion, he expressly says, the number of the cases, and the violence and complexity of the symptoms marked as it were the nature of the soil. At Portsmouth its symptoms were bad, worse at Kingston, and still more violent and dangerous at a place called the Half-way-House, where the situation is remarkably low and damp.” That this was only an intermittent diversified in its symptoms, and modified by season and soil, appears evident from its continuing to appear a considerable part of the ensuing winter in the form of a quartan ague, and from its yielding to the bark in large doses when it most resembled a continued fever.

Dr.

* Vanswieten's Commentaries, Vol. 16th. page 59.

Dr. Black, on the Human Species, asserts, that “ though fevers of the intermittent and remittent type are the endemics of all hot countries, and are generally epidemic in certain situations and seasons, yet they are not contagious, except the sick be crowded together in places from whence fresh air is excluded.” He adds that “ this circumstance as well as the remissions which occur only once in these fevers, in the course of twenty-four hours distinguishes them from the continued fever which has two exacerbations, and perceptible though slight remissions, twice within the same period. An irrefragable proof that they are derived from a different source and belong to a different genus.”

Similar remarks may be seen in the 1st Vol. of Dr. Cullen’s *First Lines of the Practice of Physic*. (Vol. I. sect. 29th.) In none of the works of the last mentioned illustrious author, is there the least intimation of intermittents or remittents being contagious; and surely a man of Dr. Cullen’s reading, experience and observation, would not have omitted a circumstance of such importance, if he had thought them so. His words are, “ * The remote causes of fevers are chiefly contagions or miasmata, and miasmata are the cause of intermittents, and contagions of continued fevers, strictly so called. Drs. Gardner and Clark, though both strenuous advocates for the doctrine of the contagious power of those fevers, acknowledge that they only become so when the air in the apartment of the sick is confined and saturated with animal effluvia.” Dr. Zimmerman has delivered a similar opinion respecting the contagious power of the dysentery.

The extraordinary and adventurous Bruce, informs us in his *Travels*, (Vol. 3d. page 366, 8vo. Dublin Edition) that “ Bilious fevers are often epidemic along the Coast of the Red Sea, from Sues to Babel Mandel, and often prove mortal in three days; but he makes no mention of their being contagious. These like
other

* Cullen Vol I. Page 123.

other remittents, yield to the bark, but it must be given in a different manner from that employed in Europe."

The bilious intermitting fever described by Dr. Raymond, which prevails in the autumn universally in the Islands of Zealand and the neighbouring coast of Zealand, he says, from a variety of facts is well known not to be in the least contagious. Physicians who attend the sick, and other people who live in the same house with them, are never seized with the same complaint, unless they have been previously exposed to the same cause.*

Dr. R. Jackson in his Treatise on the Intermitting Fever of America, says "the exhalations from swamps were a fruitful source of fevers to the British troops, not only in the southern states, but at King's-bridge on York Island, in the year 1778 and —9; but remarks, that "none of these were contagious." (page 88.)

Dr. Hunter was of opinion that none of the fevers which occur within the Tropics, are contagious, and that when contagion is imported, then it is soon extinguished.

Dr. Wade in a paper on the Prevention and Treatment of the Disorders of Seamen and Soldiers in Bengal, written in the year 1791, declares that "during his residence in Bengal, though fevers and dysenteries were often epidemical, they never exhibited any appearance which could excite a suspicion of their being contagious."

Dr. Ross, one of the members of the College of Physicians of Philadelphia, also informs us that he was at Bofforah on the *Euphrates* in the year 1776, when a bilious remittent prevailed there, which was unusually mortal, but was in no instance contagious.

Dr. Chisholm in his Treatise on the Pestilential Fever which prevailed at Grenada in the spring of 1793, remarks that "he had never in any instance known the endemic bilious fever to be contagious."

Along

* Duncan's Commentaries, Vol. 4th. page 145.

Along the flat and swampy grounds of Maryland, Virginia, the two Carolina's, and Georgia, especially where an extensive surface of putrid soil is exposed to the scorching rays of a blazing sun, bilious remittents are periodically epidemic, and amazingly malignant; but there is not one well authenticated instance of their being contagious.

We are told by Mr. Townsend in his Travels through Spain, that a bilious remitting fever prevails at Carthagea every autumn, in consequence of its proximity to an extensive marsh on its east side called the *Almajor*, which occasions great mortality; but that it differs in no respect from the bilious fevers of other countries, excepting that putrid and nervous symptoms sooner take place, than in colder climates with purer air.

Dr. D. Ramsay, whose authority is unexceptionable, remarks in his Sketch of the Climate of South Carolina, that the bilious fever differed from the yellow fever in not being contagious. Dr. Rush has given an Account of the Bilious Remittent Fever, which was more than usually prevalent in the southern and eastern parts of the city and district in the year 1780, which was occasioned by the water that had been permitted to overflow, and stagnate upon the low grounds between the conflux of the two rivers, from the neglected state of the drains and banks. This fever was attended with extremely distressing symptoms, but it did not bear blood-letting, nor is there a hint expressed of its being contagious.

Dr. Buel has published an Account of a Bilious Fever, that was epidemic at Sheffield and the country adjacent, to a large extent of marshy ground and stagnant water, in the autumn of 1793, 1794 and 1795, which in some cases appeared to be malignant. This fever he ascribes to marsh exhalations, but has made no mention of its being contagious, which he certainly would not have omitted, if he had ever observed any thing of the kind.*

The

* See Webster's Collection of Papers on Bilious Fevers.

The experienced Doctors Taylor and Hansford, in their Account of the Bilious Fever which prevailed at Norfolk in the summer and autumn, of the year 1795, deny that it was contagious.

The physicians of New York, who have written on the malignant yellow fever, which prevailed in that city in the year 1795, and destroyed the lives of near one thousand of the inhabitants; are decidedly opposed to the opinion, that bilious fevers are contagious, as is evident from their denying that the yellow fever was contagious; which they supposed was only a higher grade of the common bilious fever, which prevails there more or less at the same season every year, and which they ascribe to the effluvia of the mud and stagnant water of the flats and docks.

Although Doctors Gardner and Clark, and a few other authors assert, that the bilious remitting fever, arising from marsh miasmata is contagious, they acknowledge before it becomes so, "It must be in some measure altered in its nature by unfavourable situation, and the impure air of crowded wards."*

Lind, (of Haflar) whose opportunities of making observations were confessedly great, though perhaps sometimes too much hurried by the duties of his station to be always accurate, observes "that tropical remittents are the most dangerous and difficult to manage, yet these are not contagious, unless when accompanied with dysentery, and the sick are crowded together." This is an important fact, and distinguishes this fever from the nervous or putrid fever. In those febrile epidemics and endemics from marshy situations, the remissions are also more perceptible and synchronous, than in those from animal contagion.†

Here we have an acknowledgment from some of the ablest, and most learned of the advocates for the doctrine of the contagious power of intermittents and remittents, that

* Animal œconomy, page 234.

† See Lind's Papers on Infection.

that " they are not naturally or necessarily contagious, but may become so after they have in some measure changed their nature."

This is certainly in effect giving up the point, for a disease changed in its nature, is no longer the same that it was originally, but a new disease. If they are not changed in their nature, and are contagious, they must propagate a fever of the same character and type with themselves. But every case of fever which originates from febrile contagion, exhibits the type and character of the typhus or continued fever, with nervous or putrid symptoms.

When the attendants on patients with an intermitting or remitting fever are attacked with a fever of a continued type, and nervous or putrid symptoms, it implies, not that those fevers are contagious, but that a contagious matter has been generated, accumulated, and rendered active, in consequence of the situation and circumstances of the sick : For it has been often experienced, that contagion has been generated in consequence of the confinement of healthy persons in situations where the air is confined till it becomes saturated with the effluvia issuing from their bodies, which are thereby converted into contagion. But this contagion produces a fever of a continued type, and an assemblage of symptoms which distinguish it from every other genus, and propagates a fever of the same type and assemblage of symptoms from one to another. But remittents do not produce their likeness to persons exposed to their influence ; therefore as remittents they are not contagious.

To conclude, if fevers become contagious and are communicated from one to another, the disease caught being similar to the one from which it took its origin ; it may be inferred that they depend upon a specific and unaltered contagion,—but if a person takes a fever from another, different from the original disease, it shews that a specific contagion has been generated, entirely different from that by which the original disease was produced.

That a contagion may be generated by persons labouring under intermittent or remittent fevers in confined

finned and unventilated situations, I do not pretend to deny, but I contend that the contagion so generated is of a specific kind, entirely unconnected with the intermittent and remittent fever, otherwise it would occasion in those exposed to it, a fever of an intermittent or remittent form; but instead of this it always occasions a fever of a continued form capable of being communicated in succession from one to another.

That the contagion generated by patients labouring under the recited diseases is not connected with those species of fever, but entirely independent of them appears to be rendered certain from the very same kind of contagion being frequently generated in similar situations, by persons entirely free from every kind of fever.

How the exhalations from the living human body in a confined portion of the atmospheric air become a poison, capable of generating a disease in a sound body, distinguished by a particular assemblage of symptoms, I do not pretend to know; but the fact is unquestionable.

Recent and accurate observations have not only convinced me, that febrile contagion is always derived from the living human body, in situations deprived of a due proportion of oxygen or pure air; but that the contagion is rendered more virulent and deleterious in proportion to the extent and duration of the heat to which people in such situations are exposed. This is confirmed by the Account of the Origin of the Yellow Fever, which appeared in the Island of Grenada, in the beginning of the year 1723, published by Dr. Chisholm. And of that on board the *Busbridge*, East Indiaman,* in 1792. Noxious effluvia indeed frequently arise from putrid animal substances in confined situations. Dr. Monro mentions a remarkable instance of this, and some later examples are recorded by Mr. St. John. But it does not appear from these cases, that those noxious effluvia produced any symptoms resembling those of putrid or pestilential fevers: On the contrary, they

* *Annals of Medicine* for 1796.

they acted as direct stimulants, and occasioned inflammatory affections, which were not preceded by symptoms of debility, and which are, entirely different from the effects produced by febrile contagion.

Let us now advert to the question, relative to the malignant fever being only a higher grade of the common bilious fever which derives its origin from the effluvia of marshes or putrid vegetable matter. Though it be difficult to convey precisely in words a description of the symptoms which distinguish the one disease from the other; their discriminating marks not consisting so much in one or two symptoms, as in a certain assemblage of several, yet when the whole of the symptoms of each are compared jointly and severally, the difference is exceedingly clear and evident.

The malignant yellow fever is distinguished at its commencement, from the worst cases of the bilious remitting fever, by the suddenness of its attack, shortness of the cold stage, greater severity of pain in the forehead of the head and eyes, which are also more frequently inflamed and watery in the former, than in the latter; and especially by the costiveness or dysenteric state of the bowels, the excretion of bile, which is a constant symptom in the bilious fever of hot climates being as invariably deficient at the beginning of the malignant yellow fever; the remissions are also more obscure, and the skin more dry. The debility in the animal functions is greater, the stricture about the precordia more distressing, the countenance more flushed, of a deeper purple colour, and exhibits the appearance of greater misery and distress. Dr. Jackson observes, that though the yellow fever appears variously in persons of different constitutions or diatheses, from its first accession, it may generally be distinguished from the endemic remittent of the country, not only by the obscurity of the remissions, but likewise by a certain expression of the eye and countenance, with something unusually disagreeable in the feelings, of which words convey an imperfect idea.

The malignant yellow fever which prevailed last in Philadelphia, differed very considerably from the usual remitting fever in not shewing any disposition to puke, except when excited by medicine, before the end of the second, and often not before the beginning of the fourth day.

The remarkable irritability of the stomach in the former, which comes on, in the majority of cases (when the disease is permitted to run an uninterrupted course) about the third or fourth day, in consequence of which a constant nausea and retching to vomit, brings up every thing as soon as it enters the stomach, and is accompanied with a burning heat, and sense of foreness, deep and frequent sighing and restlessness, distinguish the yellow fever very materially at this period from the bilious remittent.

The bilious colour of the skin, and the coffee ground, or black vomitings, which frequently occur in the advanced stage of the disease, may when they both occur, be considered as decided and unequivocal marks, which distinguish this disease not only from the bilious but from every other form of fever except the plague.

But the yellow fever does not differ from the bilious fever, only in the circumstance of contagion, and in the aspect and severity of its symptoms; it differs from it also by its symptoms being rendered worse, by some of the remedies which are most efficacious in the cure of the bilious fever.—Nor are these the only circumstances in which these fevers are dissimilar: The bilious fever occupies more especially marshy districts, where the inhabitants reside at a considerable distance from one another, and invades a number at the same time; its cause being mixed with a considerable portion of the atmosphere, and its influence sometimes extending more than a mile from its source; it is also more or less endemic in such situations at the same season annually.

Whereas the yellow fever never appears among the inhabitants of marshy countries in temperate climates, but in such climates, when it does occur, is always confined to sea-port towns, where, on its first occurrence

currence it has always been traced to one contracted spot near to some wharf, or foul vessel.—If it originated from the same cause as the bilious remittent, every part of the town, where it occurs, would be alike subject to the disease, at the same time, or within a few days of each other.—Some would be seized in the north and south, some in the east and west, the centre and circumference, at the same time; but instead of this, the malignant yellow fever every time that it has occurred in this city, (and it has occurred only five times including the present year, in the course of the present century, and once before, that we have any account of on record or have learned from popular tradition,) has always made its first appearance in one circumscribed point, and first affected a few individuals who resided near, or transacted business at that particular point, while every other part of the city has continued perfectly healthy, until the disease has had time to spread itself by contagion. From those circumstances, it is evident that the seeds of the disorder do not float in, or mix with the atmosphere to any extent, but must be sought for in some other source.

If we go down to the meadows and marshes on the flats of the Delaware and the Schuylkill, and look for it among the diseases, which exhalations engender, it is not there. Imagination, and her whimsical daughter, *Theory*, have created something in those places, which they have called its likeness; but, the *Sallow Imp* of the marshes, is the offspring of different parents, and differs essentially in its character from the jaundice-eyed fiend, which extends its destructive sway by contagion. If we look for it, in the effluvia from the gutters of the streets, the heaps of unmolested dirt, in the alleys and lanes, the mud and litter with which the wharfs and water street is too often encumbered, it still eludes our search. If it was the offspring of the last mentioned sources, the market women, the farmers, and all those that transact business in market street, and especially all that reside in the narrow and dirty and crowded alleys, would be subject to the *mighty destroyer* every summer.

That

That the malignant yellow fever, is a species of fever belonging to a genus, essentially different from that of the *bilious remitting fever*, is farther supported by the authority of the majority of those authors, that have had the best opportunities of acquiring information on the subject.—To save the trouble of transcribing the passages which support this opinion, the reader is referred to the works of Warren, Desportes, Schote, Hume, Blane,* Mosely,† Jackson,‡ Chisholm, and Bryce.§

Dr. Chisholm, after comparing the malignant yellow fever, (which was epidemic at the port and town of St. George, in the island of Grenada, in the year 1793, some months previous to its appearance in Philadelphia,) with the endemic bilious fever of the islands, concludes thus,|| “ If we may be allowed to draw a conclusion with respect to the diagnostic of this disease, from the remote and proximate causes, from the symptoms, and from the dissections, I apprehend we must consider it as truly pestilential, and differing from the plague, strictly so called, *only* in not always exhibiting all the symptoms that are peculiar to that malady.”

The cases annexed to Dr. Chisholm’s book, demonstrate, that the fever which prevailed at St. George’s, was essentially the same, as that, which afterwards prevailed at Philadelphia. I purposely reserve the result of my enquiries into the origin, and causes of the malignant yellow fever, for a separate treatise, which I am preparing for publication.

A DE-

* Page 397 and 8.

† Page 396.

‡ Page 163, Philadelphia Edition.

§ Annals of Medicine for 1796, page 117.

|| Page 149.

A DESCRIPTION
OF THE
BILIOUS REMITTING
FEVER,
AS IT USUALLY APPEARS IN
PHILADELPHIA, IN SUMMER
AND AUTUMN.

IN this fever though there is not a complete intermission or cessation of the febrile symptoms, there is an abatement or remission more or less evident once in the course of every twenty-four hours.

This fever after being preceded for a day or two, and sometimes much longer by a disagreeable sense of languor and debility, usually attacks between eight and eleven o'clock in the morning with a chilly fit, which after a longer or shorter duration, is accompanied with or succeeded by the following symptoms. Alternate sensations of cold and heat, darting and thrilling through the back and limbs, acute pain in the fore part of the head, back and limbs, yawning, stretching, restlessness, constant thirst, dryness and clamminess of tongue, mouth, and fauces, flatulency, nausea, and frequent attempts to puke, sometimes bringing up bilious matter, and sometimes voiding it by stool. In many cases the cold stage is accompanied with cholera; in others, especially when the fever attacks persons of a phlogistic diathesis, or strongly disposed to local inflammation, it
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is attended with costiveness. In these cases however the patient generally has a call to the chair before the commencement of the second paroxysm. The urine during the cold stage is pale, copious and crude ; but as soon as the hot stage is established, and during its height it becomes high coloured, and during the remission appears thick and cloudy and sometimes deposits a brick-coloured or brownish mucous sediment. During the continuance of the hot stage, there is always a sense of tightness and uneasiness about the thorax and stomach, and more or less frequency and uneasiness in respiration. As the hot stage advances the pulse (which during the preceding stage was low, small, quick, contracted, and irregular) becomes freer, fuller, stronger; the temporal and carotid arteries throb; the face becomes suffused with a scarlet blush; the muscles of the face diminished during the cold stage, now become larger than in health; the skin shrunk, rough, pale and dry before, now becomes distended and smooth. The sickness and propensity to puke so constant and distressing during the cold stage, and also during the conflict between the cold and the hot stages, before the latter becomes completely established, now ceases; and about four o'clock in the morning sometimes two or three hours sooner, but oftner an hour or two later, all the feverish symptoms begin to remit and continue to decline till the hour of the first attack: Then the same process is again renewed and the fever runs the same course as the preceding day; and so on every day till it entirely ceases, becomes an intermittent or degenerates into a continued form.

After the second paroxysm, and sometimes after the first the fever is seldom preceded by a cold stage, but comes on with sense of languor, restlessness, flushings of heat, an increase of thirst, and some nausea, or flatulence at stomach, and the fever generally continues moderate till four or five o'clock in the afternoon, when it becomes more violent and continues in that state till the morning. In some cases this fever is worse every second day. It also sometimes makes its first attack in the evening. In those cases the paroxysms are
generally

generally longer, and the remissions more obscure than when it attacks, or when its paroxysms are renewed in the morning.

In some cases at the beginning of the fever, stomach sickness accompanied with vomiting and discharges of bile from the bowels is so predominant, especially in children whose systems are extremely irritable during the season when remittents prevail, in consequence of the summer's heat, and often from the effects of teething, that many physicians, have supposed, that a redundancy and depraved state of that fluid was the principal cause of the fever, and in infants have confounded it with the cholera infantum : This is, however, a very great error, for vomiting, by whatever means excited, if often repeated, with violent efforts, scarcely ever fails of forcing bile from the biliary ducts, and sometimes in enormous quantities. An extraordinary secretion of bile in this fever, and in every other, is the effect of great irritability of the stomach, in conjunction with a defect of power in the circulating vessels on the surface of the body ; the consequence of which is, a preternatural determination to the vena cava, liver, &c. and of course the cretion of an extraordinary quantity of bile in a given time.

During the exacerbation of the fever, there is always more or less, head ach, and pain in the back and limbs, and in many cases delirium, accompanied with much restlessness. The face and eyes also appear more turgid and lively ; the tongue appears at first whitish and moist, or lightly tinged with a streak of yellow. But when the fever has continued for several days, with an increase of debility, it becomes covered with a dark, brown, tough and dry crust. In some cases, great prostration of strength is visible from the beginning, in others, it decreases gradually in the course of the fever. The thirst varies with the rise and fall of the fever, a bitter taste is common ; a diarrhœa is more frequent than costiveness—the colour of the urine varies with the rise, progress, and decline of the *paroxysm*: At the commencement of the paroxysm it is pale, thin and copious, at the height it is high coloured, scanty and cloudy, at the decline

cline it is still high coloured, but very turbid, and lets fall a sediment; the heat of the skin, also varies with each stage the of paroxysm.

When the disease has continued for several days with encreasing debility, it is common for the skin and eyes, to become heavy dull and yellow, and the countenance to appear ghastly. In those circumstances, the pulse is always weak and exceedingly quick, and the mind affected with delirium of the low kind, commonly called typhomania.—When the disease has continued without abatement, and especially when the prostration of strength has become very considerable, the symptoms frequently become so much diversified in different patients, that the inexperienced, are apt to suspect them to labour under different diseases; some are costive, others have a constant diarrhoea; some are chilled by every passing gale, while others are refreshed by the coldest air; the skin of some is constantly parched with heat, while others are as constantly bathed in sweat.—But symptoms common to almost all at a late period of disease, are a low, quick pulse, ghastly countenance, sunk eyes, continual heat and restlessness, with sickness, faintness, and prostration of strength, at the usual time of the accession of every fresh paroxysm; and this sickness, and increase of debility, generally lasts from morning till evening, and frequently all night, particularly, every second or third day; after which, there is generally some abatement of these distressing and alarming symptoms for some hours.—If the debility still continues to increase, the the pulse becomes weaker, lower, smaller, quicker and more irregular, through every stage of the paroxysm, and the remissions become no longer discernable, except by greater prostration of strength, anxiety and restlessness at one time of the day, (generally about noon) than another. The days on which this fever usually terminates in health, are the 5th. 7th. 9th. 11th. and 13th. These are also the days on which the remissions are most manifest. When this fever terminates favourably, the remissions become more distinct, accompanied with a warm moisture on the skin, and a copious sediment in the urine, an intermission then succeeds, and
strength

strength gradually returns. In many cases it terminates unfavourably without the aid of art, but in the present improved state of medicine, few die of this fever when judiciously treated. When this fever proves mortal, and the strength is nearly exhausted, the patient, as in the last stage of other fevers, lies altogether upon his back, and frequently slides to the foot of the bed ; in this condition, he has always more or less twitching of the tendons at the wrist, and is affected with low delirium, in which he mutters incoherently to himself.—His tongue, his teeth, and lips are covered with a dark coloured, sordid crust: His tongue trembles when thrust forth for inspection ; his eyes appear dull and stupid ; his sensibility, which in the early state of the disease was too acute, is now the reverse ; his hearing becomes impaired ; he doses with his eyes and mouth half open ; he sees objects indistinctly, and clouds appear to hover round him ; a stupid insensibility pervades all his faculties ; the sphincters lose their retentive power ; the fæces and urine pass off involuntary ; and as if lamenting his hopeless condition, tears steal down his ghastly face ; the pulse falters, and only moves in tremors, losing, on the slightest pressure, all motion ; a cold and clammy sweat bedews his torpid limbs, his fingers, his nails, his lips grow purple, his respiration becomes interrupted, by a collection of phlegm, occasioning a peculiar rattling in the trachia, vulgarly called the death rattle, frequently interrupted by hiccup. These symptoms are generally followed soon after by death.

In some cases, this fever is protracted from one to four weeks ; in others, it terminates in a perfect intermission in as many days, especially when properly managed. Cold and clammy sweats are almost infallible signals of approaching death, in every stage and period of the disease.

The whole of the prognosis may be thus summed up. Tone and vigour, or a moderate degree of that state of body, distinguished by the name of inflammatory diathesis, without local affection, afford the surest signs of

safety: Whereas general failure of the powers of life, or irregular determination to organs of importance, are the most certain signs of danger.

The season of the year, and state of the weather, with respect to dryness, or moisture, as well as local situation, have considerable effect in varying the symptoms, and in determining the mildness or violence of this fever. In marshy and wet situations, and dry seasons, the cases which occur about the latter end of summer and beginning of autumn, are generally attended with greater debility, and have much more obscure and imperfect remissions; the general diathesis of the system, has also a greater tendency to putrefaction, mixed with nervous affection, and sometimes with symptoms of a malignant nature.

The stomach, bowels, and biliary system, suffer more under these circumstances than at other times. When the summer and autumn have been wetter and cooler than usual, the fever at its commencement, generally partakes of an inflammatory nature, but the remissions at first are very imperfect, and with difficulty discerned, yet with proper management they soon become distinct and complete.

DIAGNOSTICS.

THE remitting fever, is distinguished from the typhus, or continued fever, by the remissions being more distinct, and by having only one remission in the course of every twenty-four hours, whereas the remissions in the typhus, though perceptible only to those who pay particular attention to symptoms, occur twice in every twenty-four hours. It also differs from the typhus at Philadelphia, in being more constantly attended with evacuations of bile, by vomit and stool. It is produced by a very different cause, and is not like that disease, contagious: In these respects it also differs from the yellow fever of the West Indies, as well as in the excretion

tion of bile, though it often resembles that disease, in occasioning a yellow colour of the skin and eyes of the patient. From the semi-tertian, it differs in no essential respect, excepting in the violence of its symptoms ; the remissions in most cases of each, being one day more perfect than another.

CAUSES

CAUSES WHICH PREDISPOSE

TO THE

REMITTING FEVER.

THE persons most subject to this fever, are the relaxed and debilitated, the delicate and infirm: Persons thus circumstanced, exposed to the occasional or efficient causes of the intermittent fever, contract a remittent, that is a fever of the same nature as an intermittent, only differing in degree, in consequence of the difference in constitution and predisposition.

In all cases of this fever in order to ascertain whether it partakes most of the inflammatory, or nervous diathesis, the state of all the functions of the body should be carefully examined; for by the prevailing diathesis as indicated by the symptoms, our treatment of the disease ought to be regulated.

If the pulse be either rapid, strong and full, or even low and hard, or tense, we may be assured that the disease partakes of an inflammatory nature, and more especially if accompanied with pain of any particular organ.

But where the pulse is weak and soft, however frequent or quick, and there is a corresponding debility in the animal functions or voluntary muscles, a contrary diathesis is always prevalent.

The pulse however though generally a good index of the state of the arterial system, is sometimes so much affected by passions of the mind, by the state of respiration and by local affections that we may be misled, if we trust to it, without comparing it, with other circumstances inseparable from the disease.

By

By attending to the state of the stomach, and of the muscles subservient to the will, together with the state of the brain, and comparing the condition of each with the pulse, we may generally form a proper estimate of the state of the disease.

In forming a judgment of the state of the *vis vitæ* from the sensible heat of the body, much caution and discernment are requisite; for, although an increase of sensible heat always follows an increased circulation of the blood, it does not always depend upon the force with which it is impelled by the heart, but is often owing to the obstruction of perspiration, whereby the heat is prevented from passing off. Nor is the quickness of the pulse an index of power in the system, but the reverse, excepting when joined with fulness or hardness.

P R O G N O S I S.

THE prognostics in this as in other fevers, must be derived from our knowledge of the causes of death in febrile disorders in general.

These in the present form of fever are to be determined by the state of debility, and the degree of disordered action present in the several functions of the body.

The symptoms which denote a great degree of debility in the animal functions, are

1st. Weakness in performing the voluntary motions, and swooning when in an erect posture.

2^d. Imperfect sensations.

3^d. Typhomania or delirium, accompanied with great debility.

4th. Those which denote a great degree of debility in the natural functions, are foulness and dryness of the tongue, gums, and fauces; great loss of appetite; distension of stomach; insatiable desire for acids and cold water; involuntary stools and urine, &c.

Great debility in the vital functions, is denoted by the lowness, smallness, or emptiness and quickness of
the

the pulse; hurried, and interrupted respiration; oppression at the precordia; restlessness; deep, and frequent sighing; sunk and inanimate appearance of the eyes and countenance, &c.

With respect to the fluids, danger is denoted by petechiæ, or the eruption of livid or purple spots; effusions of blood under the cuticle; bloody and brown coloured urine; profuse and obstinate diarrhœa; profuse, weakening, colliquative, or clammy sweats, accompanied with coldness of the extremities, &c.

BEFORE I proceed to the treatment of this fever, it may not be improper to add that cases of remitting fever frequently occur, especially in the early part of summer and latter part of autumn, in which inflammatory symptoms or marks of high arterial action are predominant; this happens especially when a considerably long period of very warm weather is succeeded by heavy rains, and a sudden change of temperature in the atmosphere. While the atmosphere continues either uniformly dry and warm, or uniformly wet and cool, fevers are very rare; of this we had striking examples in the hot and dry summer of 1782, and the wet one of 1788.

The pulse in such cases is not only frequent during the paroxysm, but it is likewise quick, hard, and vibrating; the heat is often intense; the internal functions, and the various secretions are considerably disordered, and the whole surface of the body appears dry and rough.

The remission that follows for the most part is obscure, the pulse frequently retaining, a preternatural quickness and hardness, and the skin still retaining a considerable degree of febrile heat. In these circumstances, the excretion of bile is an unusual symptom, and the patient is inclined to be costive, till after the preternatural and strong action of the arteries, is reduced by depleting remedies. In these cases the head and back suffers more severely, than when it appears in any other form.

In this climate, contrary to what occurs within the Tropics, rainy summers and autumns, though they do not occasion the remissions always to be more perfect and visible, they render the type more simple, and the diathesis oftner inflammatory.

In hot and dry seasons on the contrary, especially from the beginning of August, to the middle, and sometimes to the latter end of September, the fever is usually blended with symptoms of a nervous kind, and particularly accompanied with bilious evacuations.

In these cases the mind is much seldomer affected during the exacerbations, than in the former : Sometimes, however the patient is affected with lively and unruly delirium, sometimes the delirium only amounts to a slight incoherence in the train of ideas, or a momentary suspension in the power of recollection.

The paroxysms in this variety of the fever seldom exceed eighteen hours, and in some cases are finished in twelve, and the remissions are distinguished by more or less perspiration, though this seldom extends completely to every part of the body. The remissions in those cases, which are accompanied with copious evacuations of bile, though more perfect than those, in which the phlogistic diathesis is predominant, are by no means complete ; the head-ach and other disagreeable feelings usually abate, but signs of languor, and of imperfect solution, are still observable, in the tongue, pulse and skin.

The paroxysms frequently increase in violence, in the progress of the fever, and the remissions become less distinct. In children the first paroxysm, is sometimes introduced with an epileptic fit, and in many of such young subjects, it is common for the febrile action to be determined, particularly to the brain ; and to terminate in hydrocephalus internus : This is more particularly the case in the early part of summer, when cold weather is succeeded by sudden and intense heat.

In some cases, particularly in persons addicted to free living, instead of a paroxysm, consisting of different parts, in a certain order of succession, there is sometimes an entire stupor and insensibility, which continues for a deter-

determinate space of time, accompanied with evident signs of fever, especially with flushing in the face, and full pulse; while in others during the whole period of each paroxysm, and especially previous to the exacerbation, a tremor and agitation of the limbs are constant.

In debilitated constitutions, each succeeding paroxysm generally returns sooner than the regular period, always with symptoms of great distress, and sometimes with new and alarming ones; it generally declines at the beginning in twelve or fourteen hours, but each succeeding remission becomes less distinct, except when obviated by the rules of art.

The fevers which occurred at Philadelphia, in the autumn of 1794, (the spring and fore part of the summer of which had been preceded by a great deal of rain,) were generally double tertians, the paroxysm beginning one day in the forenoon, the next in the afternoon. In the cases that became dangerous, or difficult of cure, the paroxysms were gradually anticipated half an hour, or an hour every day, till the fever became an obscure remittent, resembling the typhus, or fever of a continued type. In those cases in which the paroxysm came on later every day, the disease in a few days became a regular intermittent.

In the central parts of the city, this fever was a rare occurrence; but in the suburbs and the southern and western parts of the city it was, to a limited degree epidemic. But from the notes which I kept of the state of the weather and diseases of that season, it appears that on the 1st. of September, there were twenty cases of simple intermitting fever, to one of remittent.

Several cases of remittent with bilious puking occurred on the 16th. Three cases of double quotidian came under my care, i. e. two paroxysms came on every day, one in the forenoon and one the evening, but the symptoms were always more violent every third day. The water in the ponds which had been constantly full of water, on each side of pine and lombard streets began to diminish rapidly about the middle of the month. On the 19th. a sudden change of the wind to N. W. reduced the thermometer 17° . Immediately after
this

this change in the temperature of the air, almost every family in the vicinity of those ponds were attacked with tertian, or quotidian fevers. On the 26th. I visited sixteen patients, with distinct intermissions.

Ten cases remittent, with inflammatory symptoms, and three with bilious evacuations. Intermittents and remittents, continued prevalent till after the middle of October; but as the season grew colder, they either declined or became combined, with topical inflammations.

EXTRACTS from my NOTES on the WEATHER and DISEASES of the year 1795.

THE spring and summer of the year 1795 were agreeable, cool, and frequently refreshed with rain.

Torrents of rain fell all the first week of August, the wind N. E. and occasioned remarkable freshes, which occasioned great injury to the agricultural interest. Not a case of remittent came to my knowledge before the 16th of this month: From this time till after the middle of October, intermittents and remittents were only sporadic.

All the ponds, ditches and hollows about the city, continued full of water, from July till after the 10th. of September, a proof that much rain had fallen within that period: About the middle of the month heavy dews began to fall, and several cases of remittents occurred, accompanied with bilious discharges. Several cases of cholera also occurred at the same time. On the 16th of September, the proportion of intermittents to that of remittents, was ten to four.

By the 17th. the water in the ponds and ditches had diminished considerably, and presented a moist and putrid surface to the sun.

Frost was observed for the first time this season, early in the morning of the 23d. The cold weather has begun to give an inflammatory complexion to the intermittents, which have lately occurred in southwark and the extremities of the city. The weather became

mild on the 24th. and continued so till the 4th. of October, two days excepted, on one of which a considerable quantity of rain fell.

On the 5th. of October it became so cold, as to render fires necessary.

The proportion of remittents, to that of intermittents, was three to one; but cases of neither were very numerous.

From the 6th. to 12th. the weather was calm and mild; after rain which fell on the 11th. the wind changed to N. W. and became cool and pleasant; on the 13th. it again became calm and sultry, 14th. cloudy; 15th. heavy rain: remittents were now more general than they had been any part of the season, and were for the most part accompanied with strong and quick action of the arteries. Blood-letting soon after the commencement of the fever, to a second, and sometimes to a third time, from ten to fourteen ounces at a time, was sometimes found requisite to procure a perfect intermission. From the 14th. to the 20th. the weather was exceedingly variable.

Ice appeared on the gutters, in the morning of the 18th.

On the 21st. I had several cases of intermittent, but only one of remittent fever.

EXTRACTS from my NOTES on the WEATHER and DISEASES, of 1796.

THE measles, the scarlatina, the tussis ferina, the small pox, and the mumps, were all prevalent at the same time in the month of April, and in some instances in the same family.

The winter and spring, till May, had been remarkably cold: The weather in May, variable and generally cool.

June till the 17th. was almost constantly wet.

From the 21st. of June, to the 1st. of July, the weather was fair.

A few

A few cafes of intermittents occurred about the end of the 1st. week in July.

August 1st. Intermittents had not increased in number.

Weather cold and variable from 1st. to 9th. Sultry from 9th. to 15th. 15th. cloudy and remarkably cold, continued cold till 20th.

The remainder of the month, sultry, with frequent showers.

The whole of August remarkably healthy; inflammatory cafes most prevalent.

The first case of remittent, that occurred in my practice this season, was on the 8th. of September. Intermittents were considerably numerous.

After the middle of September, cafes of remittent fever, became more numerous, but were generally mild.

Return of Patients with Remitting Fever, admitted at the Dispensary in the Year 1787.

February, - 2	July, - 7	October, - 3
April, - 1	August, - 8	November, - 3
June, - 1	September, - 10	December, - 1

Return of Patients with Remitting Fever, admitted in the Year 1788.

January, - - 1	August, - - 3
March, - - 1	September, - - 3
June, - - 4	October, - - 1
July, - - 4	November, - - 1

Return for 1789.

March, - - 1	August, - - 4
May, - - 1	September, - - 7
June, - - 2	November, - - 1
July, - - 4	December, - - 2

Return

Return of Remittents for 1790.

January,	-	-	1	July,	-	-	-	4
February,	-	-	2	August,	-	-	-	8
March,	-	-	2	September,	-	-	-	4
April,	-	-	3	October,	-	-	-	7
May,	-	-	1	November,	-	-	-	3
June,	-	-	4	December,	-	-	-	1

Return of Remittents admitted in the Year 1791.

May,	-	-	1	September,	-	-	-	7
June,	-	-	1	December,	-	-	-	3
August,	-	-	2					

Return for 1792.

February,	-	-	1	August,	-	-	-	8
March,	-	-	1	September,	-	-	-	11
June,	-	-	1	October,	-	-	-	11
July,	-	-	2	November,	-	-	-	2

The preceding returns demonstrate that the bilious remitting fever very seldom becomes epidemic in Philadelphia, though sporadic cases occur annually at the same season.

Nor have I ever met with a case of bilious, or any other form of fever, occasioned by the air of the city, or of the marshes which has communicated a fever to the nurses, attendants, or physicians.

A register of the weather and diseases of the present year, I reserve for my intended publication on the Malignant Yellow Fever,

OF THE TREATMENT.

IN order to the successful treatment of this fever, the first thing to be attended to is the removal of the remote causes, or those circumstances which gave it birth. Removal therefore to a dryer situation and purer air, is next to indispensable.

The next step is to attempt by the most efficacious means to obtain an intermission as speedily as possible after the attack of the fever, that the Peruvian bark may be administered to the best advantage.

With this view, we are to consider how far the violence of the fever on its first attack, will admit of blood letting and the antiphlogistic regimen, always retaining in memory, that so long as the inflammatory symptoms are evident, which is always the case when the pulse is strong and full, or quick and hard, or tense, however *small and low* it may feel, and the skin continues hot and dry, the tongue white and moist, the pain in the head, back, or limbs violent, blood letting is not only a safe, but a necessary remedy, a *Sine qua non*, which *ought not* to be dispensed with.

The success which attended blood-letting in some cases of yellow fever, connected with local affection in the autumn of 1793, and an opinion which has since been conceived or adopted by some of the physicians of Philadelphia, that all fevers depend on the same proximate cause, differing only in degree, however produced; and that they are all inflammatory at the beginning,
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has induced several physicians to transfer the same practice to the kind of fever, under consideration. In cases also purely inflammatory, blood has been drawn to an astonishing quantity, without any apparent injury, but in every case as far as I have been able to obtain information, it has proved injurious and in some cases fatal when the disease was not attended with inflammatory symptoms, or when these were partial and slight.

In a great number of patients however with a fever of a remitting form, connected with an inflammatory diathesis (which frequently occurs in the fore part of summer, and the latter end of autumn) I have frequently found it requisite to take away ten or twelve ounces of blood every day to a fifth time, and in a few cases where the pulse was very quick and hard, I have opened a vein with advantage twice a-day, and I believe it ought to be a rule in all such cases, to bleed more or less according to the violence of the symptoms, without regard to the period of the disease, or the name which others may think proper to call it. I must at the same time observe, that where purging and antimonials are freely employed, they will in many cases even when inflammatory symptoms are predominant, supercede the necessity of being so very lavish of human blood.

I have learned by frequent experience the truth of Dr. Balfour's observations, that all laxative and purgative medicines as well as injections, are very uncertain in their operation, and frequently disappoint us, so long as any considerable degree of fever is present. The period therefore at which fevers shew a tendency to remit, should be carefully watched, and purgatives administered on the first signs of a remission—And when these are not evident, still the usual period of remission is to be preferred for that purpose. At this time they will generally operate and evacuate the bile, secreted and accumulated during the exacerbation, which is the first and indeed, an indispensable requisite in the cure of these fevers.

Mercury is so effectual for this purpose and at the same time attended with so little hazard, that it may be with propriety stiled the key of the hepatic system.

Mercury

Mercury has been for several years employed as a purge of superior efficacy in bilious fevers, by several respectable physicians in Europe as well as in the East and West Indies, particularly by Dr. Gilchrist, Pringle, and Hamilton. And it was employed by the late Dr. Huck Saunders in the cure of intermittents, in which the bark failed; but, the discovery of its efficacy in the cure of malignant and contagious fevers when employed so as speedily to affect the salivary glands, was reserved for Dr. C. Chisholm, who first employed it for that purpose in the year 1791.* How far it will have the same effect in cases of the fever under consideration, remains still to be determined by future observations;—but from its effects in cases of obstinate intermittents, when given in small and repeated doses internally, or employed by friction externally, till it occasions salivation, there is every reason to expect it will have the same effect in cases of bilious remitting fever.

Dr. Clark, in his *Observations on Diseases of Long Voyages*, gives the following account of the efficacy of mercury in violent cases of fever, Vol. I. page 182. edit. 2d. “I have had much experience of the superior efficacy of calomel, conjoined with opium, in taking off irritability of stomach, and in opening the bowels: And therefore in all dangerous remitting fevers, attended with vomiting, burning heat, and pain at stomach, I would recommend the pills, No. 4.† Two to be taken immediately, and one to be repeated every half hour, till the pain abates. After this their operation is to be assisted by glisters, fomentations, and in very urgent cases, by the use of the warm bath.

.. “When the irritability of the stomach, is by these means removed, all bilious and corrupted humours should be carried off by a solution of salts, in a decoction of tamarinds, or an infusion of sinna, &c.” In a note at page 183, Dr. Clark adds, “The yellow fever of

* See Duncan's Med. Comment. for 1793.

† Four of these, contain ten grs. of Calomel, and two of opium.

of the West Indies, and that of Senegal, have been represented to be always beyond the power of medicine ; but I have little doubt, that the fatality of the worst kind of fever, may be obviated by a practice similar to that above mentioned." In such cases, he also recommends, " A hundred drops of laudanum in an emollient glisten ; the patient to be put into a warm bath, and when removed to bed, eight or ten grs. of calomel to be given in the form of pills, with opium, if the anodine glisten has not removed the vomiting, the operation of the pills to be promoted by purgative glistens, and as soon as the bowels are opened, to throw in the bark, in the most liberal manner, without loss of time."

Dr. Balfour, who practised medicine twenty years in different parts of the East Indies, gives the following testimony in favour of the use of mercury in fevers. (Treatise on Putrid Pestilential Remitting Fevers, published in 1790, page 109.) " Calomel in a degree, superior to any other medicine, I am acquainted with, possesses the property of loosening and detaching the mucus of the intestines : It requires, in general from six to ten hours to effect this perfectly, and operates best when the patient lies quietly in bed. A proper dose to an adult, is from six to twelve grs. and this dose must be repeated from three to six times, or as often as the state and contents of the intestines may require, at the beginning of the disease, and afterwards occasionally, as it may seem to be required, by the fulness of the bowels and the state of the contents." When the mucus is loosened by the calomel, Dr. Balfour, prescribes a solution of salts, with a very small portion of emetic tartar, to be given in divided doses, every morning after the calomel, at the beginning of the disease. After this process, he prescribes the liberal use of the bark, &c.

Dr. Wade, also a physician of considerable experience, who practised in the East Indies, after delivering an opinion, that the fevers of that climate, depend upon a vitiated state of the mucus of the intestinal canal, and recommending active purgatives for the removal of their cause, adds, " As the disease does not always arise from the quantity or quality of grosser matters in the stomach

stomach and intestines, or from any portion of vitiated bile and other secretions, which the utmost power of the usual purgatives can effect, we must have recourse to such as are active, and better calculated to remove the complaint. It may be deemed particularly fortunate, that the purgatives which prove most successful in fevers, are as mild in their operation, as they are certain and powerful.

“From two to ten, or more grs. of calomel, with a greater proportion of any of the other articles, form a dose of the utmost safety. These doses should be repeated every second night, or if the symptoms are pressing, every night, as long as any thing offensive shall remain to be discharged from the bowels.”*

“It may be received as a general rule, that the mercurial laxative be given at night, and the medicines necessary to promote its effects, early next morning, as well as in the course of the day. The more those symptoms called putrid, or nervous are present, is the use of mercurial purgatives indicated.

“Mercury exhibited, in the yellow fever, black vomit, &c. so as to affect the mouth, has uniformly proved successful.” *Edin. Med. Com.* for 1793, Vol. 18.

Dr. Blane, in his *Observations on the Bilious Remittent Fever of Hot Climates*, remarks, that “when the fever appears to be kept up by a fresh accumulation of bile, the repetition of evacuants is necessary, and calomel will be found to answer remarkably well as a purgative, its stimulus being so extensive as to loosen, and bring away bile, when the saline purgatives had failed of having that effect; and it will be still more effectual for this purpose, if given alone, in a dose, from five to ten grains, and followed some hours afterwards by some other purgative.” (*Observations on Diseases of Seamen*, page 392, &c.)

In obstinate and protracted intermittents, that resisted the power of the bark, it was the practice of the late Dr. Thomas Bond, at the Pennsylvania Hospital, to put
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* Sir John Fringle prescribed twelve grs. of calomel, and thirty of rhubarb, for a dose to soldiers. W. C.

the patient under a slight course of mercury, after which the bark generally succeeded. And we are informed by Dr. Blane that Dr. Huck Saunders assured him, that he had frequently cured agues, in which the bark had failed, by putting the patient on a course of mercury, and afterwards returning to the use of the bark. (Page 428 of Dr. G. Blane's Observations, published in 1785.)

Dr. Chisholm first discovered the efficacy of mercury in 1791 in a contagious fever which he at first mistook for the hepatitis, in the cure of which its efficacy had been for a considerable time established, not only in the East Indies, but in England, as appears from the 9th. Volume of the Edinburgh Medical Commentaries. In the yellow fever at Grenada in 1793, he also experienced its superior efficacy. Dr. Gilchrist, (as appears from the Edinburgh Essays and Observations, Physical and Literary, Vol. III. page 498) more than fifty years ago, entertained the most decided opinion of the virtues of mercury in the low state of fever, connected with inflammation. Dr. Gilchrist's discovery has since been followed and improved upon by several physicians of acknowledged merit. But he whose penetration makes the first discovery or improvement, and removes injurious prejudices, is entitled to the greatest share of gratitude and applause.

Dr. Gilchrist's practice was afterwards applied to the liver disease in the East Indies, and from an apparent analogy, being applicable to bilious fevers, it has since been a remedy in the hands of almost every practitioner. Consequently as a medicine in those kinds of diseases, it is not entitled to the distinguished name of a *New Remedy*.

As the chief objects of attention in the majority of cases in this fever (when debility and bilious evacuations are the most prominent symptoms) are the contents of the stomach and intestines; upon the patient's first complaint, before the paroxysm of the fever has formed, or while the patient perhaps only complains of alternate heats and chills, the contents of the stomach should

should be immediately evacuated, either by an emetic, cathartic, or by a purging glister. But if the pain of his head be violent, blood-letting should always be premised, unless great prostration of strength should forbid it.

The next step towards procuring a remission, is to open the pores of the skin. This in the beginning of the disease, where my observations have principally been made, is best accomplished by the following draught, repeated every second or third hour, with plentiful warm dilution of the antiphlogistic kind.

℞ Aq. Ammon. Acetat. ℥ij vel ʒss
 Aq. hord. vel simp. ʒi
 Tart. Emet. gr. $\frac{1}{6}$ vel $\frac{1}{4}$
 Sach. Alb. ℥ij M. f. haust.

Experience teaches us that antimonials are particularly useful in the early period of this fever, especially when there is the least tendency to an inflammatory diathesis, which is always the case when the pulse at the wrist is tense, and the throbbing in the temporal and carotid arteries strong.

In cases however where there are no evidence of such diathesis, but where the prostration of strength is very considerable, they are not only useless, but injurious, as they have a tendency to counteract the small degree of power still remaining, and which can only be augmented by cordial and nutritive remedies.

When the means already prescribed, fail of inducing an evident remission, the fever is generally kept up by a fresh accumulation of bile in the gall bladder or ducts of the liver. When this is the case, there is generally a sense of weight or uneasiness about the hypochondria. In these circumstances a repetition of evacuants is requisite, and calomel as recommended by the sagacious Dr. Blane (a living author in high estimation) is generally found to answer remarkably well as a purgative, its stimulus being so extensive, as to loosen and bring away bile as well as hardened feces, when the saline purgatives have failed of that effect. "The calomel has been found most effectual for this purpose when given during the remission, in a dose of
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from five to ten grains, followed five or six hours after by a glister, or some mild purgative."

This being effected, antimonial are to be again administered in small doses, and if there be no inflammatory symptoms present, an anodine, combined with an antimonial, and a little of the saline mixture should be given every night at bed time.

R: Suc. Limon. $\bar{3}$ fs. Sal. Alk. Veget $\bar{3}$ fs.

Tart. Emet. gr. $\frac{1}{4}$. Tinct. Opii. gtt. x l.

Aq: Com: Sacharat $\bar{3}$ ifs. m. f. haust.

The principal point of management, after an evident remission is obtained, is to administer the Peruvian bark to the best advantage.

Whatever may be the case in tropical climates, more or less remission is always necessary in this part of the world, especially at an early period of the disease, before this medicine can be administered with success, or even safety.

When the remission is prevented by excess of debility in the arterial system, which may generally be discovered from the weakness of the pulse, and great propensity to faint, or become sick at stomach upon being raised up; blisters as well as a more cordial regimen are absolutely necessary, and in general produce a favourable effect.

The bark should be administered during every remission, in as large doses as the stomach can retain, without occasioning much oppression or sickness.

It is best in substance, but when it cannot be taken in that manner, it may be made into a strong decoction, in conjunction with a little Columbo root and serpentaria: Should the stomach reject it in this form, we ought without delay, to have recourse to it in glisters, with the addition of a little laudanum. In this way, from two to four drachms of bark, with ten or fifteen drops of laudanum should be administered every two hours, mixed with a tea cup full of panada or fowl broth, till the return of the fever, during the exacerbation of which an antimonial mixture is again to be made use of.

When

When considerably weakened by the paroxysm, a little wine, especially old port, on account of its astringency and tonic effect; should be occasionally joined with the bark, or a little of it given after every dose.

Wine however is seldom proper, or even safe in large draughts, in the early stage of this fever, except in those cases when the prostration of strength is very evident and alarming.

In every case, where the remission is obscure or imperfect, and no local affection, or inflammatory symptoms are discoverable, the most probable means of affording relief, is to excite a universal sweat. This is not only an imitation of nature, but is founded on reason and experience, for it is by sweating, that the fit of an intermittent is terminated; this however should be attempted by gentle soothing means, and not by strong stimulating, and heating medicines and regimen.

For this purpose, the following composition, given at the height of the paroxysm, is frequently effectual.

℞ : Aq. Ammoniac : acetat : ʒij. vel. ʒfs.

Tart. Emet. gr. fs. Tinct. Opii. gut. xv.

vel. xx. Aq : Cin : simp. ʒifs. Sach. alb. q. s. f. haust.

To coincide with the same intention, and to render the effect of the above composition more certain, plentiful and warm dilution is necessary: And I have generally found an infusion of serpentaria, sage, or some other mild aromatic, preferable to farinacious decoctions, or vinous mixtures. The application of warm moisture to the surface of the body, renders the effect of the remedies already mentioned still more certain. This may be performed by bathing the feet and hands in warm water, or by fomenting the thighs, legs, and arms, with warm flupes; these operations have the effect of bringing on a general relaxation on the skin, of diminishing irritation and delirium, and of inducing sleep.

But before we make use of pediluvia and warm fomentations in this fever, we should be well assured that the strength of the pulse and velocity of the circulation are not already too great, otherwise instead of obtain-

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ing the end for which we use them, we shall find if the heat of the water exceeds 98° , they will have a contrary effect, because of the stricture induced on the exhalents by the heat, which not only stimulates the solids, but distends the fluids. The pulse must however be raised several degrees above the healthy state of action, otherwise no sweat will flow.

Some patients are troubled with incessant puking previous to the accession of every fresh paroxysm, and are sometimes so debilitated and reduced by it, as to threaten immediate danger. In these cases after having immersed the feet and legs in water as warm as can be conveniently borne, from 30 to 40 drops of liquid laudanum should be taken in a draught of peppermint julep, or combined with an effervescent mixture of vegetable alkali and lime juice, and should be repeated after every evacuation, till it have the desired effect. If the stomach reject the laudanum immediately after it has been taken, a double quantity mixed with a little aromatic infusion or tea, should be thrown into the bowels frequently. If this should fail, or should not be submitted to, flannels wrung out of hot spirits of wine or brandy, and covered with powdered spices, such as cinnamon, alspice, and cloves, or ginger, and black pepper, should be applied to the stomach, feet, and wrists; or they may be rubbed with oil of cloves, laudanum, and sweet oil, and covered with heated flannels. When chilly sensations prevail, these applications are nearly equal to blisters. Blisters to the thighs however may be applied at the same time when the case is urgent; and in alarming cases, a blistering plaister should always be applied to the stomach.

As puking frequently precedes or accompanies every fresh paroxysm, and is attended with a sensible diminution of vigour in the several functions of the body, and takes place nearly at the same hour every day, or every second day; it may generally be prevented by giving the patient from twenty-five to forty drops of Thebaic tincture, in any mild and palatable cordial draught, two hours before the expected paroxysm, and especially if blisters be applied to the wrists or legs at the same time.

When

When the case is not so urgent as to threaten immediate death, the feet and hands may be plunged into cold water to increase their irritability, before the application of heat and other stimuli.

In many cases incessant vomiting cannot be restrained by any means till the circulation is restored to the surface, and perspiration takes place. For this reason we are advised by Dr. Jackson to take the patient out of bed, dash cold water over his head and shoulders, return him to bed, and to give him a cordial anodine draught, with warm aromatic and palatable drinks. These means he informs us (and my own experience confirms the truth of his information) generally occasion a calm and equable perspiration, with great abatement of irritability, and frequently a complete intermission of the fever; and by keeping up a determination afterwards to the surface by means of diaphoretics, diluting drinks, and a blister to the liver, bilious evacuations seldom become troublesome during the remaining course of the fever.

I have also frequently seen the stomach settled by small and repeated draughts of hot lime juice punch, while the patient's feet and legs were fomented with flannels wrung out of warm water.

Where lime juice cannot be readily obtained, for making the effervescent neutral mixture, the following powder may be substituted.

R. Sal. Alk. vegetab. fixat gr. x.

Pulv. Chrystal. Tartar Di

Sach. Alb. 5fs M. (f. Ch. No. j.)

By throwing this powder into a glass of water, an effervescent neutral mixture, is instantly formed.

In the generality of cases in this fever, it is of much importance to prevent the patient from becoming costive, and frequently to carry off the bilious matter which is constantly secreted; otherwise the Peruvian bark, the remedy on which we chiefly depend for the cure, cannot be given to effect. On the contrary, if given when bilious and other acrid and excrementitious matters abound, it generally occasions spasmodic affections, or distentions of the stomach and intestines; adds

to the feverish heat, and often occasions a foulness of the tongue and fauces, and sometimes brings on delirium.

Moderate and frequent evacuations by stool, under these circumstances, instead of weakening the patient, sensibly refresh and strengthen him, in proportion as the aggravating cause of irritation and distress is removed from the bowels.

But as bilious, and other excrementitious matters originate and accumulate from debility and relaxation, as soon as they are removed by the recited means, their recurrence should be as much as possible prevented by the free use of the bark, and such drinks and aliment, as are found upon trial, to agree best with the patient. The application of a blister to the region of the liver, is a most invaluable remedy for this purpose.

Where however, there is great lowness, and disposition to swoon upon rising; glisters should be employed instead of purgatives, when occasion requires. In these circumstances, copious evacuations are generally injurious.

In all cases attended with symptoms of evident debility, and ineffectual re-action in the vascular system; blisters ought always to be employed without delay, the earlier after the attack, the better. The excitement produced in the centre of the nervous system, the common sensory, by their stimulating power, is conveyed to every part of the system, and new vigour is given to every function. That the power and action of the heart, as well as the voluntary muscles, depend in a great measure on the excitement, and power of the sensorium, is clearly demonstrated, by its cessation immediately after the cardiac nerves have been divided.

Though the first effects of blistering is to stimulate, excite, and invigorate, the discharge which follows, is debilitating in proportion to the quantity discharged, after the inflammation produced by the blister has subsided. For this reason, when our view in the employment of blisters, is to excite and invigorate the circulating powers, and not to relax and debilitate, the surface excoriated by the blister, should be healed as speedily

speedily as possible, or fresh inflammation excited by some irritating ointment.

I believe, from some trials I have seen, that it would be advisable, as one part heals, to apply a blister to another, for the purpose of keeping up successive excitement, till an intermission takes place.

When from increasing debility, neglect, mismanagement, &c. the disease assumes a continued form, (which is very common in low damp situations, when the weather is very hot, sultry, and calm,) the most strenuous and persevering efforts should be made to invigorate the whole system. For this purpose, in addition to the successive application of blisters, (one of which in dangerous cases should always be applied to the back part of the head and neck, or, if much affected with nervous delirium, over the centre of the head;) the best of wine should be given in different forms, in panada, in whey, and by itself, observing always to regulate the quantity, by the state of debility present, and its effects upon the pulse, and brain.

Strong decoctions of bark and serpentaria, should also accompany the use of wine, and may be given now without regard to remissions. If the stomach rejects or loaths it in every form, it should be employed in glisters.*

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* In these circumstances, we are assured by Dr. Jackson, that he found more service from the cold salt water bath in the remitting fever of Jamaica, than from any other remedy.

When the bath is employed, the patient, if his strength will admit, is seated in an arm chair in a large tub, and one or two large buckets of water are poured over his body, after which he is wiped dry and conveyed to bed: This operation is generally directed twice or thrice a day, or oftner in alarming cases. When the bath cannot be employed this way, the patient's body may be washed two or three times a-day with the salt water, as cold as he can bear it, by means of napkins wet with it, and afterwards wiped dry.

“Where a putrid tendency is evident in the system, which is always indicated by petechiæ and great prostration of strength, besides the cold salt bath, cool air, clean linen, cold drink, and the liberal use of wine, cannot be too much insisted on.”

In cases accompanied with great debility, tremors of the hands, typhomania and watchfulness, symptoms common in the latter stage of this, as well as of the putrid fever, from contagion; opium is at present a favourite prescription with many physicians, but they are by no means agreed with respect to the doses, or periods of repetition.

Doctor Cullen, who paradoxically says, it possesses both a stimulant and sedative power, advises it in large doses, and to be repeated only once in six or eight hours, while others, less influenced by theory, perhaps, direct it in small and repeated doses, in conjunction with vinous drinks. In this way it is a remedy of superior efficacy, in all cases accompanied with low, weak pulse, and failure of the vital powers; and especially in all cases attended with typhomania and subsultus tendinum.

When any difficulty occurs in distinguishing the weak pulse from the strong one, we are assured by Dr. Darwin (in his *Zoonomia*, Vol. 2d. page 301,) that "it may generally be ascertained by counting its frequency. For when an adult patient lies horizontally in a cool room, and is not hurried or alarmed by any circumstance, nor stimulated by wine or opium, the *strong pulse* seldom exceeds 118 or 120 in a minute; and the *weak pulse* is generally not much less than 130, and often much above that number. Secondly, in sitting up in bed, or changing the horizontal, to an erect posture, the weak pulse is immediately quickened 10 or 12 pulsations in a minute, which is not the case in the strong pulse, when the patient has rested after the exertion of rising."

It has long been known to physiologists, that sensation and voluntary motion, depend upon a certain power or function of the brain; but it is a discovery of modern date, that, though the muscular fibres of the heart, are endowed with a certain degree of inherent power, they are still for such action as is necessary to the motion of the blood, very constantly dependent on a nervous power transmitted into them from the brain, which influences, and modifies the actions of the heart: This is evident

evident from the motions of the last mentioned organ immediately ceasing, upon dividing the cardiac nerves. A force is therefore supposed to be constantly exerted in the brain during life, which is extended to the fibres of the heart, as well as to every other part of the body.

It is evident to the most superficial observer, that the sensibility, and irritability of every part of the body, are rendered less susceptible of impressions, by the use of opium.

In all cases of pain arising from any cause, except that from inflammation, it is a sure and never failing palliative, and generally succeeds in procuring sleep, if given in doses sufficiently large to overcome the irritations present in the system, or to allay the exquisite irritability.

The best method of ascertaining the manner in which any medicine operates, is in the first place, to observe the ultimate effect, and then to go back step by step as far as possible to the primary cause: The first cause has in no instance been discovered demonstratively; but in tracing secondary causes, we may proceed with tolerable certainty: Agreeably to this plan, I have endeavoured to ascertain the effects of opium upon the living body; and have found its first effect, is uniformly that of increasing the temperature of the body. As from the sensible qualities of this substance it cannot act like heat, by uniting with, and increasing the temperature of other bodies, it must act by increasing the cause of heat, but as the heat of the body is always in proportion to the strength, or the rapidity with which the blood circulates through the vessels, nothing can increase the temperature of the body, which does not at the same time augment the rapidity of the circulating blood. The increase of heat takes place soon after taking opium, which must therefore be owing to the stimulus of the opium upon the heart and vessels, by sympathy from the nerves of the stomach, or through the intervention of the brain.

When there is great determination to the head, accompanied with ferocious delirium and great restlessness,
neither

neither wine nor opium should be employed. The most serious consequences have arisen, from the intemperate use of cordials in such circumstances. Here bleeding, and blistering the head, and sedatives, are indicated; but when the pulse is low and quick, accompanied with convulsive motions of the muscles of the limbs, two or three grains of opium, joined with eight or ten of Sal. Am. Vol. made into a bolus, with conserve of roses, ought to be given at bed time; and five or six grains of the volatile salts, with five or six drops of laudanum every two or three hours in the day time, followed by a large draught of a strong decoction of bark and snake root, sangree, or wine whey.

In the last recited circumstances, genuine Madeira wine is the most agreeable, as well as the most effectual cordial that can be employed; and may be given without restriction day and night, till the subsultus and tremors give way, and the pulse feels fuller and more vigorous. Some of the cases which are the most unmanageable and fatal, are those in which there is a spontaneous diarrhœa.

In every instance therefore, when the diarrhœa is so profuse as to debilitate, an attempt should be made to restrain it.

This in general is most effectually done, by taking a small dose of tincture of opium, with two or three table spoonfuls of the chalk mixture, of the London Dispensatory, five or six times a-day, and the confectio opiata, at night.

It often happens, that the patient cannot be prevailed upon to take the above medicines: In such cases a few drops of tinct. opii. in a little wine mulled with the yolk of an egg, cinnamon and sugar will have the same effect, and is much more grateful to the patient.

The hiccup is most effectually relieved by opium and æther, and the application of a blister to the stomach.

The most suitable and agreeable aliment is sago, panada, chicken broth, or beef tea; with the addition of more or less wine, according as the debility is greater or less.

When

When wine raises the pulse, and invigorates the system, without inducing delirium, it is right to persist in giving it ; but when it occasions or increases delirium, restlessness and heat, it ought instantly to be discontinued. The intention of giving wine, is to increase and support the powers of the system ; not to heat, irritate, and prevent sleep.

In general, if the bark be given freely in the time of the remissions, there will seldom be a necessity to give much wine, during the first week of the fever, and seldom afterwards, to exceed one pint of Madeira or port, or a bottle of claret, in twenty-four hours.

In cases, where coma, or lethargic symptoms come on, besides the cordials already mentioned, a blister should be applied to the coronal suture, and sinapism to the feet.

When the fever is entirely subdued, and the patient in a state of convalescence, he should still continue the use of wine, or porter, and a nourishing invigorating diet. He should also frequently take moderate exercise in the open air in suitable weather, observing to accommodate his dress, to the changes of the weather, and to his debilitated condition.

To promote a more speedy recovery, it will be proper to make use of an infusion of cort. Peru. or rad. Columb. in water with the addition of a little of Huxham's tinct. cort. or old brandy, with the daily use of the cold shower, or plunging bath, and a dose or two of some agreeable composition, with sal. mart. or flor. martial. If the stomach remains weak and dyspeptic, brandy and water, will be a preferable drink, to either wine or porter. Œdematous swellings are apt to follow this fever, when it has been long protracted.

These, where no tumefaction and obstruction of the liver or spleen are discoverable, generally give way to exercise, and regular, generous, but not intemperate living. When they do not, diuretics ought always to be combined with tonics.

Ten or fifteen grains of pearl ash, taken two or three times a-day, in a draught of the following bitter infusion, generally answers this purpose equal to any other.

R. Rad.

℞ Rad. Gentian Cortus ʒij. Cort. Aurant. ʒfs.
 Sem. Coriand. ʒfs. Aq. Com. ℥iiss.
 coquend. ad ℥ij. & colend.

If this fails, the digitalis or powder of Squills alternated with chalybeate pills should be substituted; and if the swellings still gain ground, recourse should be had to mercurial frictions, repeated every night till the mouth becomes affected, which should be kept in that state for three or four weeks at least; the strength of the patient being supported at the same time with suitable aliment.

If œdematous swellings increase, or prove tedious, boluses containing two three grains of sal martis, or ten or fifteen of flores martiales with the addition of some agreeable aromatic, may be taken several times a-day, in conjunction with a cordial and invigorating regimen. The tinctura ferri muriata of the London Pharmacopæa, is a very efficacious preparation, and may be taken several times a-day in doses of from ten to twenty drops in any agreeable draught.

AN

ACCOUNT OF THE FEBRILE DISORDERS

WHICH PREVAILED IN SHEFFIELD IN THE STATE

OF MASSACHUSETTS, IN THE YEARS

1793, 1794 AND 1795.

EXTRACTED

FROM A LETTER OF WILLIAM BUEL, PHYSICIAN AT
SHEFFIELD, TO E. H. SMITH, PHYSICIAN
AT NEW YORK.

BEFORE entering directly on the subject of the disorders, which prevailed here in 1793, 1794 and 1795, I shall mention some circumstances relative to the face of the country in the Town of Sheffield.

The river Housatonak runs in a serpentine course through this town, from North to South. Upon the banks of the river, on each side, is an extent of intervale, or meadow land, averaging on both sides at about a mile in breadth. The greatest part of this intervale is overflowed at the time of the thawing away of the snow, in the spring; and sometimes, by large and sudden freshets, at other seasons. The nature of the soil, in general, is such, that, very soon after the water is off, the land is dry and fit for tillage. It is, however, much interspersed with coves and marshes; in the former of which the water remains stagnant a considerable part of the summer, and in many of them perpetually; of the latter there are not many upon this river, but there are some which remain such, through the season.

Beside the Housatonak, there are two other considerable streams, running through part of this town,
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which unite and empty into that river. Upon each of these streams are large tracts of low, marshy lands; great part of which is overflowed by freshets, and is never perfectly dry.—There is (which is very material) a mill-dam, on each of these streams; and the two dams occasion the overflowing of several hundred acres of the low lands. As summer advances, and the ponds fall, considerable parts of these lands are left uncovered by the water; more or less, according to the drought of the summer. In both of these ponds are large quantities of timber and other vegetable matters, which in hot weather, are always in a state of putrefaction. This state exists in an increased degree as the substances become more exposed to the action of the sun. The factor occasioned by this putrefying mass is such, in hot weather and when the water is low, as to be extremely offensive to the smell, at the distance of many rods.

The inhabitants of this town, who live in the vicinity of these marshy and drowned lands, have, as would naturally be expected, been always subject to remittent and intermittent fevers, from its first settlement. It is, however, generally remarked by the old people, that these disorders have of late years, until the three last decreased, owing, probably, to the clearing, or partial draining, of the lands.

Although, the disorders which have prevailed in this town, for two or three years past, are owing undoubtedly, principally to these local causes; yet it is not improbable, that some predisposition to them was occasioned by a general constitution of the air. To ascertain this point, with any degree of precision, we ought to have before us an accurate history of the weather, for several years past. Even then it would, perhaps, be impossible; as it ever has been found a difficult matter to trace any connection between the manifest qualities of the air, and the effects of a general constitution of it, favourable to disease. As I am unable, either from minutes, or memory, to give any account of the weather, I shall leave the matter unattempted.

In the year 1793, during the season in which such complaints usually appear, intermittents and their concomitants were more frequent than they had been for many years before. In September and October, there were a few scattering instances of bilious fevers.

Early in the spring of 1794, inflammatory complaints, chiefly of the pneumonic kind, were unusually prevalent. They were soon succeeded by intermittents; which were more frequent than they had been the year before. Nothing peculiar attended them; and they continued to occur pretty often through the summer.

Towards the last of July, the bilious, or, as it is called here, the pond-fever, began to make its appearance; principally about the South Pond, one of the mill-ponds beforementioned, and near the Canaan line. There were some scattered instances about the North Pond: and a few, which were at such a distance from both, that they were, probably, occasioned by the stagnant water about the great river, the Housatonak. But the disorder was chiefly confined to the vicinity of the South Pond. The influence of this pond appeared to extend about one mile and a half from its borders. Within this place there are about 150 inhabitants; and about 80 of this number were affected with the fever: part of them inhabitants of Sheffield, and a part of Canaan. Among those who were sick, there were five or six instances of mortality. There were not more than ten or twelve persons who had the disorder in other parts of the town. From these there was but one death; and that in a case complicated with pregnancy, and eventually with phthisis pulmonalis. People continued to be attacked with this fever through the months of August, September, and a part of October.

The disorder was, probably, in all respects, what is termed a bilious remitting fever. It began with an ague fit; intense pains in the back, head, and limbs, soon succeeded by thirst, dryness of the skin, &c. continuing without much variation 18 or 20 hours: a slight moisture then broke out upon the skin—seldom

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a profuse sweat ; a degree of remission of the fever, and abatement of the pains, then ensued, and continued till about the time of day of the first attack, when another exacerbation of fever commenced, with symptoms similar to the first. If the disease was left to itself, the remissions would sometimes become shorter and more imperfect, as the paroxysms were repeated, until it grew to be nearly or quite a continued fever. A diarrhoea, and sometimes dysenteric symptoms were added to the rest. Most of those who died were attended with a preternaturally lax state of the bowels ; which in several instances, might properly be called dysenteric. The tongue was, from the first, covered with a white fur. After three or four days, a black stripe began to appear ; extending from the root, towards the extremity ; and gradually spreading as the disorder advanced, till the whole tongue assumed a black appearance. Even the teeth and gums were sometimes covered with this black fur ; and in some patients who afterwards recovered.

In the treatment of this disorder, evacuation of some kind, is undoubtedly necessary in the early stage of it. Venesection generally produced a temporary relief from the violence of the pain, and was, probably, when the constitution was firm and robust, and the habit plethoric, frequently useful ; but it did not appear to me to be important as a curative remedy. Emetics sometimes did well ; and where there was a great degree of nausea, I thought them useful. But purging, with calomel and jalap, was the mode of evacuation I preferred, and generally practised ; and the remedy which of all others appeared to be most advantageous in the early stage of the disease.

It is unnecessary for me to say any thing more, in this place, than the assiduous purging, in the beginning, and a plentiful use of the bark, after the remissions had become such as to make it admissible, were the essential parts of the management of this disorder.

So strong was the tendency to disorders of this kind, that people continued in some instances to be affected with intermittents, or fever and ague, through the winter.

winter. These were frequent in the spring, but with no peculiarities, and yielding to the common remedy with the usual facility.

During the month of August 1795, I was in the county of Ontario, in the western part of the state of New York. There was, at that time, a disorder prevalent there, of the same nature with that which I found rise in Sheffield, on my return, and which I am about to describe. It was chiefly existent in the neighbourhood of stagnant waters, and in situations similar to those places, in this town, to which the disease was most confined. The treatment required was, of course, the same.

On my return to Sheffield, which was the 5th. of September, I found a number of the inhabitants, about the North Pond, afflicted with a fever, which began to appear about three weeks before. The people first attacked were those who lived nearest to the pond; whole families of whom were down at once. Numbers continued to be taken daily, chiefly within the vicinity of this pond, or within three quarters of a mile of its borders, till about the middle of October; after which time there were few instances of new attacks. In this time, i. e. from the 10th. of August to the 20th. of October, of about 200 (which is not far from the number of persons living within three quarters of a mile of some of the borders of this pond) not less than 150 were affected with more or less of this disease; out of which number, but one person died, and that an aged man, previously debilitated and disordered.—The number affected with this fever, in all other parts of this town, did not, I believe, exceed thirty. Of these, three died: one, an aged woman; the other two, pregnant women, of whom one died in the fever, the other suffered an abortion, and died some months after, dropical.

The disease, this year, put on a different form to what it did the last. It might, with more propriety be called an intermittent, than a remittent fever; though it was very different from a common fever and ague.

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It began, like other fevers, with an ague fit, attended with pains in the head, back and limbs. The duration of this part of the paroxysm was uncertain. It was succeeded by a hot fit, whose duration was, in different persons, from six to forty eight hours. A remission, and, sometimes, nearly or quite, a perfect intermission, then came on; but whose duration was as irregular and uncertain as was that of the paroxysm before. After the first, the paroxysms were not generally ushered in by a regular ague fit; only some slight chills were felt; and these were irregular, both in degree and continuance. The length of the next succeeding paroxysms and intervals could, by no means, be calculated for, from the preceding, so completely irregular was this disorder. The fever evidently tended to an intermittent form; but it could neither be called quotidian, tertian, quartan, nor by any other name used by authors to distinguish the different species of intermitting fevers. The pains in the head, limbs and back, were very severe, particularly in the latter, which were so universally intense, that the symptom might almost be considered as characteristic of the disorder. In the *primæ viæ*, flatulency was nearly a constantly attendant and very troublesome symptom. Evidences of an increased secretion and excretion of bile, were generally present through the disease, but were particularly observable in the convalescence. Some degree of yellowness of the skin, which was almost universal, indicated a reabsorption of this fluid, and a deposition of it upon the skin. This yellowness was in two instances which I saw, very intense. A slight degree of delirium was very common, during the height of the fever. The appearance of the tongue was much the same that it was last year.

My method of treating the fever of this year, was similar to that which I employed the last year.—Purging, in the beginning, and afterwards a plentiful use of the bark, appeared to me to be the most successful way of managing it. In extreme cases, particularly, a free and full exhibition of bark, wine and laudanum, seemed the only means of salvation. It was absolutely necessary that the patient should be thoroughly purged,
previous

previous to the use of stimulants, otherwise the bark, wine, or laudanum, would have very pernicious effects. I saw several instances, at the westward, where, by too early a use of these medicines, the fever was changed into a continued form, attended with a constantly dry and yellow skin, comatose symptoms, &c. One of the instances of extreme yellowness, which I have mentioned, was of this kind, and at the westward. I removed this symptom, and recovered the patient, by giving repeated doses of calomel and jalap, some perspirative medicines, and afterwards the bark, wine, &c. Each purge in this case, lessened the degree of yellowness very apparently. The other instance of intense yellowness, which I saw, was in this town, in the case of the pregnant woman, whom I have mentioned to have died in the fever. This woman's fever never had distinct intermissions. Several slight attempts were made to administer the bark; but it would not do. Perhaps my timidity in the evacuations, on account of her situation, was injurious to her.

The Bark did not suspend the paroxysms, in this disorder, in as short a time as it does in common intermittents; but, if the patient was properly prepared, and the use of it was persevered in, it never failed to have the effect.

Purging was probably useful in a twofold way: First by carrying off the superfluous bile; which was evidently secreted and excreted in a preternatural quantity: Secondly, by reducing the sthenic diathesis, which was perhaps always present in the early stage of the disorder.

It is true, that those whose fever was suspended by the bark, were subject to frequent relapses, and to a long and lingering state of convalescence. This drew an odium upon that medicine; and many were induced to believe that it was owing to the use of it that people were so long in recovering, and of course, that it was improper. I am convinced, however, from very attentive observation, that those who did not take the bark, but suffered the fever gradually to wear away, as it sometimes would, were equally subject to those
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inconveniences. Indeed this seems to be the nature of the disease. The old people in this town, who recollect the times when disorders of this kind have prevailed here before, and when the bark was not at all used, inform me that those who were afflicted with them, were a long time in recovering.

It seems that in all cases, when patients have got rid of the fever, either by means of the bark, or otherwise, there remains an increased disposition to the formation and excretion of bile, and that this humor accumulates in the primæ viæ, till it first destroys the appetite and occasions nausea, and then excites a spontaneous discharge by stool or vomiting, or a relapse of fever, or both. A continuance in the use of some laxative medicine, after a recovery, has a tendency to prevent these effects; and, if strictly attended to, would probably prevent them, and perhaps obviate the disposition to relapse entirely.

In reflecting on phenomena of this kind, the human mind is anxious to fix on something satisfactory as their causes. *Specific contagion, I am convinced, was in no instance which came under my observation, either here or at the westward, the cause of the propagation of the disorder.* That marsh effluvia, to whose action the inhabitants of some parts of this town are subject, is the exciting cause, and is necessary to the production of the disorders in question, is beyond any manner of doubt. This is evident from their existing only where this influence extends. But something more is wanting; otherwise we cannot account for their prevailing in some years, and not in others. Every circumstance relative to the ponds * and marshes in this town, has apparently

* I have endeavoured to discover the cause why the sickness in 1794, was confined almost entirely to the South, and in 1795, to the North-Pond; but I can find no local circumstances to have existed which should produce sickness about one, and not about the other, in either of these years.

It is probable this was owing to the different direction of the winds, at the different periods when the fever occurred.

W. C.

parently been the same for many years past; and yet very little of this form of disease has appeared, for ten or twelve years back, until the two last. We must either suppose a peculiar constitution of the atmosphere, occasioning a predisposition to these disorders, and coinciding with the local cause, or marsh effluvia; or that the marsh effluvia itself is, by some peculiarity of the atmosphere, wrought up to a higher pitch of virulence, and thus produces a higher degree of disease. I am inclined to admit the latter supposition, as I am convinced that the fevers which have prevailed here for two or three years past, and the common intermittent fever, are the same, only differing in degree. I have seen all degrees, from the mildest form of intermittent, to the most extreme of bilious remitting fever. It is impossible to say where the line of division shall be drawn. The disease this year seems to have formed a connecting link between intermittent and bilious fever; and were I to name it, I would call it a bilious intermittent. Should the intermittent fever, in its usual form, prevail next year, the disorder may be said in the three years, to have been in regular gradations run through.

SHEFFIELD, NOV. 30, 1795.

EXTRACT

EXTRACT OF A LETTER

FROM

DR. THEODORE JOHNSON

OF EASTON, TALBOT COUNTY,

TO THE AUTHOR,

DATED MAY 16TH. 1794.

“ **B**EFORE I give you a detail of the diseases which prevailed with us last summer and autumn, it may not be improper to give you some idea of the situation of Talbot, and a description of the season which preceded the sickly one, as it is a well known fact, that a predisposition to certain diseases, are frequently generated in one season, and the diseases produced in another.

This county is bounded on the west by the Chesapeake, and is variously intersected by perhaps, as great a number of rivers and large creeks, as any in the Union, some of which extend for many miles into the country eastward, and are fresh some miles from their source. The country near the bay side in general is much the most health, but (as you will readily conceive,) is much the most affected by winds. The easterly and north-easterly winds, passing over the unhealthy parts of this peninsula, usually take up and carry the seeds of fevers with them; insomuch that when these winds prevail, the bay side is often as sickly as any other part of the country.

Last spring was very wet, and the months of May and June were marked by the excess, both in frequency and quantity of rain; in consequence of which
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the crops of hay, &c. were larger than has been known for many years.

Part of July and August, was uncommonly warm.

We had comparatively few cases of fever in July, but early in August more people than I ever knew, complained of different degrees of indisposition, from a sense of lassitude to an intermittent fever. I really thought the remitting bilious fever (if it may be so called) was also more frequent, and more malignant, than I had ever seen it before. In some cases the vomiting was so violent, as to bring away large quantities of blood from the extremely relaxed exhalents of the stomach. I had one remarkable case of this kind, which terminated favourably: I have no unequivocal proofs that this fever was contagious, but am inclined to think it was, when it run into the typhus type, and exhibited symptoms of malignancy.

The dysentery most generally occurs here in autumn, when fevers of various types abound. It does not always keep pace with the autumnal fevers, yet I am disposed to think it only a different modification of the same disease, as they are often very much intermixed, and generally happen at the same season, and both appear to be derived from miasmata.

Last year there did not appear to be any great uniformity, in the appearance of the dysentery, with the fevers that prevailed; but I rather conceived it was more influenced by diet, and the sensible qualities of the atmosphere.

May not the action of cold, or some error in diet, co-operating with miasmata and other sedative causes, occasion the disease to fall with more force upon the bowels, than the rest of the system, without the influence of which, it would have assumed the common type of an intermittent? Or would you call this a symptomatic affection? I am confident I once took a true idiopathic dysentery, from getting extremely wet and cold, on being previously indisposed, at a time when autumnal fevers were rife, which always impressed Sydenham's idea very strongly upon my mind."

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EXTRACT

EXTRACT OF A LETTER
FROM
DRS. TAYLOR AND HANSFORD,
TO THE AUTHOR,
RELATIVE TO THE REMITTING FEVER
WHICH OCCURS AT
NORFOLK, ON THE CHESAPEAKE BAY IN VIRGINIA,
AND THE ADJACENT COUNTRY.

THE country around Norfolk is low land, mostly within twelve feet of the level of the sea, intersected in all directions with salt-creeks and rivers, the heads of which form swamps and marshes, and fenny grounds covered with water in wet seasons. Wherever it is not cultivated, the land is covered with large timber and thick underwood. The vicinity of the sea, and the salt-creeks and rivers, occasion a constant moisture and warmth of the atmosphere, insomuch, that although under the same latitude a hundred miles up the country, deep snows and frozen rivers are very common during the winter, yet here we consider such occurrences as extraordinary; for these reasons, the spring is very early ushered in, sometimes so early, that many trees are in bloom about the latter end of February; from this time, however, till the end of April we are subject to cold rains, piercing winds, and sharp frosts.

About the middle of May, the weather becomes sultry, with some cool days, occasioned by the change of winds to the north and north-east: At this period all the diseases of the winter begin to decline, and the whole

whole country is universally healthy (except here and there a trifling vernal intermittent which scarce requires the application of medicine) till the middle or latter end of June, when diarrhœas and dysenteries appear among the children, mostly with those under two years old, though not absolutely confine to such.

In some years the diarrhœa is almost universal, attended for the most part with an irritation of the stomach, and an irregular fever of the intermittent kind: After the proper evacuations, we apply bark in large quantities, joined to the most approved astringents and anodynes, gum kino, opium, spec. e scord. &c. and when the stomach will not bear a sufficient quantity of bark, we throw it up in glisters repeatedly, for many days together, and this we have learnt, by experience, to be the only mode which can be depended on.

In July, the heat of the weather increases; but during the whole of this month and the greatest part of August, there are no diseases at all, at least none which can be called epidemic. On the approach of the autumnal months, intermittents begin to appear throughout the country.

It is not our province here to recapitulate the several opinions concerning the cause and nature of those fevers, nor yet to divide them into numberless species and genera. We have never been able to distinguish any other difference in the nature of intermittents, than that which constitution, climate, and manner of living give rise to; those causes will divide them into perfect, imperfect, or remittent: The several terminations of them which we frequently observe into continued, putrid, or nervous fevers, will be found to arise from the same causes, and under those simple terms we shall proceed to treat of intermittents in all their stages.

Those which occur earliest in the season are uniformly of the mildest kind, and yield soonest to the proper medicines. Among the labouring and temperate class of our citizens, whose diet is simple, whose hours are regular, and whose use of spirituous liquors is sparing,
those

those fevers are perfect intermittents, generally of the tertian kind, and though not confined particularly to any age or sex, yet are most frequent among the younger class, the females and the children; they are in wet seasons almost general among those of the latter description in country places, and in low fenny ground. They yield immediately to proper evacuations, and the use of the Peruvian bark, and seldom outlast the autumnal months, even without the assistance of any art: Sometimes, however, in relaxed habits, they terminate in jaundice, enlarged spleen, anasarca, and death. We shall not be particular upon this sort of intermittents, because they are in nothing different from those which prevail in all countries similarly situated.

Among that class of citizens, whose hours are more irregular, and whose use of wine and luxurious food is more frequent, those fevers, though still retaining the intermittent, quotidian, and tertian form, are nevertheless imperfectly so; a great degree of heat, quickness of pulse, and debility remain during the whole time, which may be called intermission, with partial or total loss of appetite. Here intermittents begin to put on an appearance, which we think very different from those of any other country; they are preceded by a chilliness, which commonly seizes the patient when he thinks himself in perfect health. Head-ach, great thirst and heat soon follow, in many instances delirium, vomiting, diarrhoea, and large discharges of bile;—about the fifth, seventh, or twelfth hour the patient is relieved by profuse sweat, which continues with the aforementioned heat, quickness of pulse, and debility, till the next paroxysm. These are generally of the tertian kind, and return regularly if no medicine is used, from nine to fourteen days, when they will commonly terminate altogether, or degenerate into a slight quotidian, which allows the patient to walk about, and when the cold weather approaches, for the most part, leave him altogether.

People of the latter description are more rarely the subjects of intermittent fevers than those who live in a plain manner; and if proper evacuations are made, and
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the bark administered with perseverance, and attention to the stomach and first passages, the disease may almost certainly be cured after the third paroxysm, and very often even a second is prevented.

We have always experienced cathartics to be the safest and most effectual evacuations in those kinds of fevers; and if the patient has an irritated stomach with colliveness, emetics are not only inadequate and unnecessary but dangerous. We frequently find great difficulty in making the stomach bear a sufficient quantity of cathartic medicines to procure the desired evacuations: when this is the case, laudanum and aqua menthae, or extract. thebaïc. are administered an hour or two before the purge, which generally causes the latter to remain, and though the opiate retards the operation, it does not ultimately prevent it, or render it less powerful. After this we proceed to the use of the bark during the intermissions, and without regard to measure, give it as profusely as the stomach will permit, and in the most powerful form, beginning with the powder, and occasionally using the decoction, the extract, and cold infusion. It too often happens, that the stomach will not bear the medicine at all, in which case we give large quantities of the decoction or infusion by clysters; and we can venture to assert, when those clysters are retained in sufficient quantity, the effect is equal to that produced by any other mode of administering it. During the paroxysm, we find great relief procured, by making the patient drink plentifully of a strong infusion of serpent. virgin. to which, when the symptoms are very painful, we add laudanum in sufficient quantity to procure the patient perfect ease. These last medicines, particularly the serpent. have a visible power of shortening the paroxysm, and will rarely disagree with the stomach. The use of opium, its safety and advantage in those cases, we presume to be well known; therefore we shall decline making any observations upon it, except that we have not found it (as has been asserted) capable *per se*, of curing intermittents. It has been advised to give it in conjunction with the several preparations of bark, where the irrita-
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ble state of the stomach will not bear the cort. alone. This expedient will succeed, if the quantity from time to time be increased, and is often used with success, though it invariably occasions great distress to the patient when the fever leaves him, by inducing an hysterical or hypochondriacal sensation, which if it does not amount to pain, the patient will tell you his feelings are far worse than if it did.

The use of this medicine to prevent the passage of the bark by stool is known to every one; but we think the gum. kino for general use much better, and more permanent in its effects.

At the accession of those fevers there is frequently a full hard pulse, inflamed eyes, a sense of fullness in the breast, and sometimes a sharp pain in the side, resembling that which attends inflammatory fevers. These circumstances have often led practitioners, and others who are not acquainted with the climate, to bleed the patient; an expedient, which if it does not produce a tendency to putrefaction, invariably fixes the fever so firmly, that the cure becomes afterwards exceedingly difficult.

When no medicines are given at all, we have observed before, that the fever for the most part will decline of itself on the ninth or fourteenth day, or degenerate into a slight quotidian, and sometimes a quartan; this is, however, not always the case.

If no medicine has been given, or if the disease has been improperly treated by bleeding, or by too great evacuations, otherwise by forbidding the use of wine, &c. the fever sometimes becomes remittent.

In the town we have also many of these fevers, which though clearly belonging to the class of intermittents, appear in the form of remittents; because, there is an evident tendency to decline of the fever at a particular time, once in twenty-four hours, every other day, or every fourth day, and all the diagnostic symptoms are precisely the same as they are in distinct intermittents, making allowance for age, sex, and constitution; nor do the means of cure differ, though variously applied.

In the town, throughout the months of September and October, many of the inhabitants are seized with fevers, which begin with chilliness, a sense of fulness in the stomach, followed by pains throughout the limbs, neck, back, and hips, great heat and prostration of strength, which proceed and terminate as before described, under the term of imperfect intermittents. But others who are attacked in the same manner, particularly robust and plethoric habits, or those who are accustomed to drink a great deal of wine, porter, &c. and take plentifully of luxurious food, have a greater sense of heat, more pain in the limbs, and much more oppression and debility—are extremely restless, sometimes with delirium, and great thirst; and when the period of intermission of the fever should arrive, viz. the ninth or twelfth hour, are but partially relieved, that is, the sense of heat is not so great, the delirium and restlessness are somewhat abated, and there are some few strokes difference in the pulse; and when there is nausea and vomiting, those likewise partly cease to torment the patient, but the prostration of strength, pain in the limbs, &c. with the dry skin, still remain: Here the evacuation by cathartics should be attempted without delay, and the period of the remission (which though obscure, lasts several hours) employed in administering bark in every possible form, without regard to the quickness of pulse and dry skin; wine should be given in large quantities, and on the return of the paroxysm, the patient should drink profusely of an infusion of serpentar. with wine.

When this plan is followed with perseverance, the patient almost always recovers, though the paroxysm, or properly speaking, the violent hours of the fever, may return once or twice; but if this is neglected, after the second return, the fever puts on a malignant and putrid type, and often ends in death.

We have sometimes found it impracticable to make the patient keep the bark in any form, or by any mode of giving it; when this is the case, the disease is always dangerous, and the only expedient we have left is the use of wine and serpentar. and we have so many times experienced

experienced the advantage of this last medicine, by giving it in a large quantity, that we cannot help earnestly recommending it to the notice of every practitioner.

It is a medicine, though of known efficacy, very much neglected, at least the proper administration of it ; like the bark, it cannot be given in too large a quantity, when the stomach will bear it. The fevers of the latter description are less common than the others.

When the disease begins to yield to the medicine, a profuse sweat comes on ; the pulse grows full, slow, and soft ; the sense of heat and pain in the limbs, back, hips, and neck abate and gradually subside ; the patient has a desire to eat, and in a few days he feels nothing but a debility, which is far from being so great as the violence of the disease would give cause to suspect, and a very little time restores him to perfect health and vigour.

When it is about to terminate unfavourably, there is an increased irritation of the stomach, with vomiting of cystic bile, mixed with tough mucus, attended in some cases with diarrhoea, the pulse grows smaller, quicker, and intermits, or rather seems at times to retreat from the finger while feeling it ; the countenance falls, the eyes become glossy, the tongue black and dry, the teeth cemented over with a black mucilaginous substance, cold extremities, and death ; the pulse, however, is never to be depended upon in the termination of these fevers ; it is sometimes so hard, full, and regular, even at the moment that every other symptom evinces the approach of death, that inexperienced practitioners would be often induced to bleed or evacuate when the patient is expiring.

When continued fevers from intermittents take place, they are generally confined to relaxed, debilitated, or debauched habits ; they are far from being common with us, and as in every other country, they either terminate on the twenty-first day, or lengthen out into what are called nervous fevers, we shall neither treat of this stage of the disorder, or pretend to point out a mode of cure, for whatever may be the predisposing
cause

cause, the disease is invariably the same, and requires the same mode of treatment in every country. We must, however, take notice of one effect which some intermittents produce, viz. a debility or affection of the optic nerve, so as to render the patient perfectly blind, till the bark and other tonics, have removed the fever, when those patients recover their sight with health.

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AN ABSTRACT
OF THE
OPINIONS AND PRACTICE
IN FEBRILE DISEASES, OF PHYSICIANS
OF DIFFERENT COUNTRIES, &c.
WITH OCCASIONAL
REMARKS &c.

HIPPOCRATES, (who practised medicine in Greece, about four hundred and fifty years before the Christian æra, and who was the first that we have on record, that reduced the healing art to any kind of system) has described a bilious fever, under the title of typhus,* which he says invades, when the *bile* is moved through the body when the dog star arises in the summer time. In this disease immediately an intense burning was felt, together with an acute fever; and immediately the strength was exhausted, with a weakness and heaviness of the body, and such an impotency of the legs and arms that they were of no use to the patient. He also remarks that the belly was disturbed with violent gripings, and evacuations of offensive excrements. The remedies recommended by this celebrated and venerable physician in the cure of this fever, were cold, and thin suppers, black austere wine, or if that disagreed, white austere thin wine. He also advises

* Typhus is employed by the moderns to signify a malignant or putrid fever.

advises the application of linen cloths dipt in cooling liquors to those parts of the body where the greatest heat is principally perceived *

This extraordinary physician collected together the signs that occur and appeared to be characteristic of every disease that came under his notice, and by comparing them with what he observed in a natural state of health, estimated the danger in proportion to the degree that those signs of disease departed from a state of health. If the physicians since his time had been content to have learned the treatment of diseases from a faithful observation of the effects of remedies instead of puzzling their heads with researches into their intimate causes, the healing art would not have been subjected at this time to the opprobrium of a conjectural art.

Erasistratus, a physician distinguished for certain innovations in the treatment of diseases, two hundred years later than the Coan sage, Asclepiades and his disciple Themison, who practised medicine with reputation at Rome a few years before the introduction of Christianity into the world, were all enemies to blood-letting in fevers. Believing the disease to depend upon a straitness of the minute or extreme vessels of the body, and especially on the surface, their practice was to prohibit the use of all kind of aliment for the first three days, and to drench the patient with copious draughts of water to relax and render the vessels permeable.

Hippocrates remarks that one should open a vein in acute diseases, if the disorder appears violent if the patient is in the vigour of his age, and the strength at that time is also considerable †

Serapion who made his appearance about the same period as Erasistratus, was the founder of the empyric sect, as the latter was of the methodic. His followers were numerous, and many of them respectable; but we have no account of their practice in the fever under consideration.

* Vanswieten's Comment. Vol. 7th. page 23.

† Vanswieten's Comment. Vol. 7th. page 196.

consideration. The summary view of Celsus, or the accidental fragments in the voluminous works of Galen, furnish only imperfect information. Contentions however, ran high between the Dogmatists and Empirics, the former of whom, were chiefly guided by reasonings; and generally misled by the erroneous philosophy of the age in which they lived, while the latter trusted solely to experience.

Celsus, who lived in the reign of Tiberius, says, "Blood-letting is required when the fever is violent, and the body looks red, or the veins swell, and appear full."—Celsus however, makes no mention of venæsection, where he treats of the cure of an ardent fever, by which term the ancients understood a disease similar in almost, or perhaps in every respect, to the malignant yellow fever of the West Indies of pestilential origin, as appears from the description of the symptoms, and period of its termination, given in Hippocrate's Epidemics, the substance of which, is delivered in Vanswieten's Commentaries, Vol. 7th. p. 96.

In continual fevers, with symptoms denoting inflammation, it was the practice of Galen, who left Pergamos and settled in Rome about the year 160, to bleed the patient till he fainted, with the view of extinguishing the fever at once. In this kind of fevers, he expressly advises blood-letting and the drinking of cold liquors. But he has made no mention of blood-letting, in intermittent or remittent fevers.

Neither Ætius, nor Paulus Ægineta, who lived after Galen : The latter in the 7th. century, and has given an analysis of the opinions and practice of the prolix commentator of Hippocrates, make any mention of opening a vein, either in the remitting, or ardent fever, as they term the synochus.—But Arcæteus, a cotemporary of Ætius, treating of the cure of a syncope, the beginning of which he pronounced an ardent fever; recommends venæsection, when the syncope proceeds from too great a quantity of blood, and some considerable inflammation appears about the liver, or precordia. He however subjoins, that "much less blood ought to be evacuated, than upon other occasions, because

because the least error committed in this respect, may be of fatal consequence."

Avicenna, the rabian, who practised medicine at Ispahan, the capital of Persia; and compiled a Treatise on Diseases, from the works of Galen, in the 10th. century. His theories are those of Galen: In the general conduct of the cure, he follows him closely. He is indeed more reserved with the lancet, while he is not always consistent with himself, in the manner of employing it.

The healing art, after the surrender of Alexandria, was little cultivated by the slothful and dispirited Greeks, but it sprung up with fresh vigour, in Syria and Arabia, and being extended with the conquests of the Saracens, it was introduced into the northern coast of Africa, and from thence was introduced into Spain and Italy.

After the fall of the Roman Empire, the genius of learning made no exertion in Europe, for a very long period of time. The Europeans were content, with the imperfect knowledge they could glean from the writings of Avicenna.—And part of the 16th. century passed over, before any real improvements were made in the treatment of fevers.

Among the most celebrated of the followers of Galen in the 16th. century, were Fernelius, Forestus, Lommius, and Sennertus; men of considerable talents, but too strongly attached to the opinions of their master, to exercise their own judgments to the best advantage.

Lommius in particular, we are assured by Dr. Patterson, (in his Remark's on Dr. Rush's Works,) recommended the use of blood-letting in the beginning of fevers in adults, and in whom vigour naturally abounds; but he reckoned it dangerous to repeat it in the exacerbation, or height of the paroxysm.—When the patients strength is not much exhausted, but purely a little diminished, with lowness of spirits; venæsection is neither to be entirely omitted, nor the quantity of blood drawn, to be copious. The length of the intervals is to be regulated by the strength of the patient

tient, and the violence of the disease. In great weakness however, the lancet is to be entirely withheld, estimating this condition principally from the situation of the vital powers; while considerable caution is to be used in judging from the pulse, as it is liable to be affected by a variety of circumstances, which are often totally unconnected with the disease. The quantity to be drawn, should depend upon the result of a comparison between the disease, and the strength of the patient.

In a violent fever, if the patient's strength be not impaired, Lommius advises a liberal evacuation of blood, and justifies the practice of Galen, of bleeding, in such cases till the patient faints, on the principle that the sudden depletion brings the patient directly to a state, different from what he had been in just before, whilst he may be revived from the syncope, by refrigerating means.

Botallus, who also lived in the 16th. century, carried blood-letting to still greater lengths, especially in pestilential fevers, in which he asserts, as quoted by Sydenham, that he found no speedier, and safer remedy in pestilential disorders, than copious and seasonable bleedings; in all his patients, which were exceeding numerous, both at the siege of Rochel, at Mons, and at Paris.

Sydenham himself had a high opinion of copious and repeated blood-letting in the plague, as well as in all inflammatory disorders; but he prohibits it in every form of the autumnal intermitting fever, even when concealed at the beginning, under the mask of a continued fever.

“Autumnal intermittents when the constitution is epidemic usually appear about June, but otherwise not till August, or the beginning of September, and very rarely in the following months. It is likewise to be noted, that it is a difficult matter at the first appearance of intermittents, especially of those that are epidemic in autumn, to distinguish them exactly; because at this time they are accompanied with a continued fever; and for some time afterwards, unless
great

great attention be given, nothing more than a remission can be discovered; but by degrees they perfectly intermit, and put on a form entirely agreeable to the season of the year." (Swan's Sydenham, p. 55.)

"Frequent experience has taught me," adds Dr. Sydenham, "that it is very dangerous to attempt the cure (of autumnal intermittents) by purging; unless in a way hereafter mentioned, and especially by bleeding. For in tertians, particularly in a very epidemic constitution, if bleeding does not prove a present cure, it prolongs the disease even in young, strong, and otherwise healthy subjects; but aged persons, after having long struggled with it, are destroyed thereby. What has been observed of bleeding, holds also of purging, with this difference only, that the latter is less dangerous, unless it be frequently repeated." (Page 59.) Boerhaave and Vanswieten have both adopted the same opinion. (Com. Vol. 7th.)

In treating of the epidemic diseases, from the year 1675 to 1680, the same author observes, that "though tertians and quotidians, after a fit or two may seem entirely to intermit, yet they frequently afterwards degenerate into a kind of continued fevers, and only come to a remission on those days that promised an intermission, &c. In this case I seize the opportunity of the remission, though it be ever so short, and give the bark more liberally during that interval, than when the intermission is perfect." (Page 310.)

The most common termination of fevers, is by sweating; this fact was observed by Van-Helmont, and furnished him with the design of prosecuting the cure of the disease, entirely on that plan. This practice appears to have been early adopted in many parts of Europe, and was in general reputation in England, at the time Sydenham engaged in practice. Sydenham having observed the bad effects of heating medicines, employed indiscriminately for this purpose, was induced to employ antiphlogistic processes, and especially venæsection, which he carried to a considerable extent, particularly in fevers accompanied with an inflammatory

flammatory diathesis, or connected with local inflammation.

But as it is the fate of the healing art, as well as every other, that depends upon opinion, to pass with large strides from one extreme to its opposite. Sydenham frequently employed his depleting remedies, in cases which later and more numerous observations, demonstrate that they were improper. His practice was always at open war with his principles; for if the fever as he believed, is an effort of nature to exterminate something hurtful from the constitution, bleeding and those evacuations, which diminish the powers of life, are not the proper means of effecting this purpose. In admitting such essential differences in the cause of epidemics, he also necessarily leads us into embarrassment, and often leaves us in a state of uncertainty; the fevers which he supposes to be essentially different, and occasioned by different constitutions of the atmosphere, is in fact the common endemic of London, and the adjacent country, diversified as in other places by the season, soil state of the weather, constitutions of the inhabitants, and idiosyncrasies of individuals. Circumstances arise in all countries, which modify the general cause of intermittent fevers, hence the disease appears at one time with symptoms of inflammatory diathesis, at another with symptoms of nervous affection, and at another with a general disposition to affections of particular organs.

Baglivi, who published his *Observations on the Diseases of Rome*, in the year 1696, says, that “The air at Rome, which is hemmed in by seven hills, is naturally moist and impure, particularly in autumn, when the days are extremely hot, and the nights cool, and accompanied with heavy dews. At this season, the air is also much impregnated with the exhalations from the low moist ground, and the waters which wash the soil in its vicinity. That city is also much infested with unwholesome winds from the south, south-west, and south-east. The air is sometimes so prodigiously hot, as to exhaust all the moisture of the soil, and to occasion fevers of a very dangerous kind; the Hemi-
tritaiaæ

tristiae of Galen, in which symptoms resembling apoplexy, were common. The air is particularly impure and unwholesome, near the flat grounds along the Tiber. But all the parts of the city, which stand high, and are thick settled, with a prospect to the north or east, and are a considerable distance from the Tiber, are healthful. In the Campagnia di Roma, which is surrounded by a ridge of mountains in every direction, excepting a tract which extends towards the Mediterranean, the air is so impure in autumn, when the south wind prevails, that if the inhabitants of the city happen to remain there only one night, and then return to the town, they are soon after seized with a fever accompanied with malignant symptoms, called the *Foul Air Fever*. In this fever, cordial and vinous medicines, and blisters, are very beneficial, but bleeding is extremely pernicious."

About the beginning of the present century, when every department of science, had arrived at a considerable degree of improvement, there appeared in the writings of Stahl, of Hossiman, and of Boerhaave, three new and considerably different systems of physic, which for a considerable time had, and still in many parts of Europe, have a considerable share in directing the treatment of diseases.

Trusting much to the efforts of the animal system, which they supposed were conducted with constant attention and wisdom: Stahl and his disciples have in general, proposed only very inert and frivolous remedies, and are extremely reserved in the use of blood-letting, vomits, &c. in fevers.

The celebrated Boerhaave, who was professor of the theory and practice of physic, in the University of Leyden; in his Aphorisms concerning the knowledge, and cure of intermittents, particularly at Section 762, expressly says, "Hence blood-letting in these fevers, is in itself generally prejudicial, otherwise it may be of service by accident, or in some cases, as may be, likewise a thin and strict diet."

On this Aphorism, his learned and experienced commentator, the Baron Vanswieten makes the follow-

ing, among other remarks ; “ Since blood-letting is so efficacious a remedy in quieting the too great violence of a fever, as we said before, many physicians have been likewise of opinion, that it may be of great use in the cure of intermitting fevers ; and some have even believed, that these fevers might be removed only by repeated blood-letting. But since it was demonstrated under the preceding Aphorism, that all evacuations if violent and repeated, are prejudicial because they weaken, so the same is true likewise of blood-letting.”

IN the System of Medicine of Dr. Hoffman, late professor at Hall in Saxony, published at Geneva in the year 1761, since translated by the late Dr. Lewis, and published by Dr. Duncan ; we have the following observations on intermittents and remittents, &c. Vol. 1st. p. 55, 56, &c.

“ In the uncommonly hot and dry summers and autumns of 1726, 1727 and 1728, a variety of anomalous, malignant intermittents were epidemic almost throughout Germany. Some suffered one, some two fits a day. In some they were at first continual, and changed on the 3rd. or 4th. day into intermittents ; in others they intermitted at first, and changed afterwards into dangerous continuals. In some there were excessive evacuations of bilious and pituitous matter, both upwards and downwards, in others constant sweats, and faintness, during the remissions or intermissions. Some complained, during the fever, of heat and cold at the same time. Young persons were sometimes highly delirious in the paroxysm ; the aged sleepy : All complained of an anxiety and painful pressure about the region of the stomach ; a dull pain of the loins, feet and head, and in the time of intermission, a pain in the nape of the neck, scapulæ, and along the spine. At length pustles breaking out on the face, or purple miliary eruptions on the body, all the symptoms abated. If a scorbutic miliary fever was joined, the disease
after

proved of longer continuance; if the eruptions were white, it was generally fatal.

“ These fevers were most frequent in marshy places; to persons of an irregular life, or weak constitution; after bleeding, strong purgatives, immoderate passions; and to women on the approach of the monthly period. Freedom of perspiration, openness of the bowels, avoiding cold moist air and unwholesome foods, were the surest preservatives. Some recovered in a fortnight; with others the disease lasted a month. Very few died, unless from some great mismanagement.

GENERAL METHOD OF CURE.

1. “ In the beginning of the disease, small doses of nitre were given, both in the paroxysms, and in the intermissions, along with some agreeable simple waters, to which were added a few drops of spir. nit. dulc. or the mineral anodyne liquor. The common drink was water gruel, with lemon juice and lemon peel, or reduced with almonds, into the form of an emulsion.

2. “ The belly, where costive, was loosened by glisters of water-gruel, with cammomile flowers, oil of almonds, and common salt, and potions of mana and cream of Tartar. In some persons, rhubarb answered better.

3. “ A sweat was promoted at the end of the paroxysms, where nature was too weak to effect it without assistance; by saturated diaphoretic mixtures, mixed with equal quantity of the anodyne liquor, and a few drops of volatile aromatic spirits.

4. “ When, by these means, the fever had abated, and changed into a true intermittent, it was successfully treated as such. In some cases, the bark was given at the beginning, after a gentle emetic, along with cascarrilla, nitre and calx of antimony.

“ In these fevers strong purgatives, and emetics did harm. *Bleeding, acrids, sudorifics*, and all hot medicines

dicines were apt to change the single intermittents into double, or into continual fevers. Mild evacuants were serviceable.

“When vomiting, restlessness, and coolness of the extremities were urgent, a gentle diaphoresis was promoted by the mineral anodyne liquor, mixed with a few drops of volatile spirits, distilled oil of mace, or a small quantity of the extract of saffron, and warm diluting drinks.”

SIR JOHN PRINGLE observes, that, “Though all moist countries are subject to intermittents, yet if the moisture be pure, and the summers are not close and hot, the fevers will mostly appear in a regular tertian form, and be easily cured. But if the moisture arises from stagnating water, in which plants, fish, and insects die and rot, then the damps being of a putrid nature, not only occasion more frequent, but more dangerous fevers, which oftener appear in the form of quotidians, or double tertians, than, in that of single ones.

These marsh fevers are not only apt to begin with little remission, but after intermitting for some days, to change again into continual fevers, with putrid and malignant symptoms.

It is also remarkable how they vary with the season; for however frequent, violent, or dangerous they have been in the decline of summer, or beginning of autumn, when putrid exhalations are most abundant, yet before winter, they are reduced to a small number, become mild, and generally assume a regular tertian form.

The first kind were observed in the campaign of the year 1747, to prevail near the inundations in Dutch Brabant; the next were those of Zealand; of the 3d. degree, were those in the lines of Bergan-op-Zoom; and the mildest sort, were such as were most frequent in the cantonments around Eyndhoven, in villages rendered moist by plantations, and subterraneous water.

At

At the height of the epidemic it appeared, that both intermittents and remittents, by extending or doubling their paroxysms, frequently changed into a continued, putrid and dangerous form, and that most of those that were lost, died in this way. But in general the mortality was not in proportion to the number of the sick, nor to the alarming nature of the symptoms. Although the distemper was violent, yet it yielded to medicine; and no kind of acute disorder seemed to require it more. One of the most unfavourable circumstances, was the proneness to a relapse, the danger of which was greatest during the hot weather, less in the decline of autumn, and least of all after the frosts began.

Frequent relapses brought on visceral obstructions, which made the intermittents more obstinate and irregular, and terminate in a dropsy, or jaundice. (p. 182,) &c.

Fifteen hundred patients, the greatest part with the dysentery, and a number of wounded men, being crowded together in a hospital, 3 leagues from Hanau, vitiated the air; and gave rise to a still more alarming distemper, viz. the jail or hospital fever; the common effects of foul air from crowds and animal corruption. (p. 22). This fever, and the dysentery grew daily worse. Few escaped, for however mild or bad the flux was, for which the person was sent to the hospital, this fever almost surely supervened.

The petechial spots, blotches, tumefaction of the parotids, frequent mortifications, contagion, and the great mortality, sufficiently shewed its pestilential nature.

Of fourteen mates employed about the sick, five died; and excepting one or two, all the rest had been ill and in danger. The hospital lost near half of the patients; but the inhabitants of the village having first received the flux, and afterwards this fever by contagion, were almost entirely destroyed.

One general hospital being established at Newied, the sick were removed from their several quarters, and carried down the Rhine to that place; where by the change of the air, those from Feckenheim were at first relieved, but the rest who were mixed with them caught
the

the infection, which the following circumstance rendered still more general and fatal. For orders coming soon after to remove all the sick from Germany to Flanders, they were embarked in Bilanders, and conveyed by water to Ghent.* During this voyage, the fever having acquired new force by the confinement of the air, by the mortification and other putrid effluvia, it became so virulent, that above half the number died in the boats, and several of the remainder soon after their arrival.

The resemblance of this hospital fever, to the true plague was further evinced, by the following memorable incident.† A parcel of old tents being sent on board the same Bilanders with the men, were used by them for bedding: These tents, in order to be refitted were put into the hands of a tradesman at Ghent, who having employed 23 Flemish journeymen about the work, lost 17 of them by the distemper, though they had no other communication with the infected.”

From these observations, and from the frequent notice taken of the supposed contagious effects of the dysentery, it is manifest that Sir John Pringle never observed the remitting or intermitting fever to be propagated by contagion; on the contrary, he expressly says, the circumstance of the dysentery being contagious, shews that it is essentially different from these fevers.

Sir John Pringle is of opinion from the symptoms and contagious nature of the pestilential fever, which occurred in the Imperial army in Hungary, A. D. 1566, described by Sennertus, (p. 254 Edit. 6th.) that it was a compound of the bilious and hospital fever, taking its rise in the camp, but acquiring its high degree of malignity

* The Capital of Flanders.

† The late malignant fever in Philadelphia, was occasioned by a circumstance very similar to this recorded by Sir John Pringle, viz. by the light sails made use of for bedding, by the crew of the ship *Archusa* from the Havanna; and also by those of the armed ship *Hind*, from St. Domingo, which were put into stores and sail lofts near the places where those vessels anchored. W. C.

lignity and contagious quality, from the foul air of the places in which the sick were crowded.

In his Observations on the treatment of the bilious remitting, and intermitting fevers of marshy countries, Sir John Pringle remarks, that “ In most cases, it was necessary to open a vein, either upon the first attack, or the next day, if there was no intermission. But repeated bleedings, unless upon evident marks of a fixed inflammation were so far from producing the desired effect, that they seemed to render the fever more obstinate. It ought also to be remarked, that the rule about bleeding regards the soldiers only, and not the natives, whose constitutions were different from the soldiers, who were not only young, but robust and sanguine. And even among the soldiers, bleeding was seldom necessary upon a relapse, as the fever then appeared without inflammation, and as a regular inter-mittent.

An antimonial emetic generally rendered the intermission more distinct. The marsh fever, during the hot season, being more apt to run into double paroxysms or to change into a continued form, than to remain regularly intermitting, it was necessary after due preparation to stop it in the first fair intermission. And for this purpose, the bark was found to be no less specific in those parts than at home—and there was no security against relapses, unless the patient took an ounce of the bark in powder, once every ten or twelve days throughout the autumn. The most effectual way to make a soldier continue the use of the bark, is to mix it with equal parts of brandy and water.” Page 109, & sequent.

MOST of the fevers of Minorca* make their first appearance in the shape of a true simple, or double intermittant

* “ A small island in the Mediterranean sea, situated about 100 miles distant from Catalonia in Spain, and in 40° N. L. The mercury in the thermometer in summer generally stands at about 80°,

intermittent tertian. The cold fit seldom lasts above an hour or two; and as it goes off, some bilious matter is commonly discharged by vomit or stool. Then follows an intense heat over the whole body, which raises the mercury in the thermometer to the 103d or 104th degree: And lastly, a profuse sweat puts an end to the paroxysm. The apyrexia is tolerably complete, though for the most part the patient complains of a disagreeable taste, loss of appetite, head-ach, and pain in the small of his back, and pit of his stomach upon a full inspiration. The pulse during the intermission is almost natural: in the fits it varies according to their predominant symptoms: When they are attended by acute pains in the *præcordia*, it becomes small and obscure, so as to indicate greater weakness than there really is: on the other hand, when drowsy lethargic symptoms come on, it often resembles that of a person in full health, though the sick is in the utmost danger. The urine, whether made in the time of the paroxysm or interval, is always clear, frothy, and of a deep red colour, without any separation. Blood drawn from a vein is most commonly florid like scarlet, without any fizy crust: the *serum* is sometimes tinged with yellow, but oftner red like the *lotura carniū*, and in great quantity. Sometimes the *serum* and *crassamentum* remain united in a lax gelatinous mass.

As the fever advances to its height, the coldness and shivering which usher in the paroxysms become less, or intirely imperceptible: in which case a *cholera morbus*, or acute pains in the back or limbs, often supply their place: frequently the shiverings are intermixed with flushings of heat. In the mean time, the paroxysms themselves become longer, and bring on more formidable symptoms; such as head-achs, raving, *sopors*, apoplectic

80°, and in winter at 43° or 50°. The weather in summer is generally dry and regular in the day time, and moderate dews fall at night—Showers are sometimes very heavy, and generally fall in the night. The surface of the island is generally rough and unequal—on the N E side the hills are numerous, with low marshy valleys between them. A considerable part of the island is rocky, and covered with woods and thickets. The soil is thin, light and stoney.”

apoplectic fits, bleeding at the nose, cough, difficulty of breathing, palpitation of the heart, irregularity of the pulse, sickness and anxiety, pain about the upper orifice of the stomach, vomiting and purging; heat, tension, pain and pulsation in the abdominal *viscera*; *subfultus tendinum*, and an infinite variety of other complaints, which do not entirely cease with the sweat, that carries off the paroxysm; so that the apyrexia is not only shortened, but rendered more obscure.

Besides, it often happens, during the second, third, fourth, or fifth period, that the tertian becomes double, though at first it was simple: Or if it was double from the beginning, the weaker fit continues, without any intermission, till the stronger comes on, and both being blended together, the disease puts on the appearance of a semitertian, having one very long fit, with a short interval every forty-eight hours. Sometimes a double tertian degenerates into a triple tertian, two fits instead of one happening on the odd days.

It must likewise be observed, that, in the progress of the fever, the regular order of the periods is frequently disturbed, by the paroxysms changing their hour of invasion, and attacking, unawares without any previous cold. Nor are anticipating fits always a bad sign, or those which postpone a good one, as some authors insinuate; on the contrary, the first frequently shew the strength of nature, as the others do her weakness.

After this manner these proteiform distempers continue to vary their shape in every period, and to produce longer, more severe, or more frequent paroxysms, till they arrive at their height; about which time the fits and intervals are often so confused, that they are scarcely to be distinguished: nevertheless, if death be not speedily the consequence of this confusion, they commonly again put on a more simple or regular form, and, after one or more slight paroxysms, go away of their own accord.

Those fevers which come to their height in the third period, terminate in the fourth or fifth period. Those which come to their height in the fourth period, terminate in the fifth or sixth. And those which come

to their height in the fifth, terminate in the sixth or seventh. When the most vehement paroxysms happen on the odd days, the *crises* will be on the odd days: When they happen on the even days, the great changes of the distemper will likewise be on the even days.

If the fever increases to the seventh period, it probably will not cease before the ninth: But it rarely happens that intermitting or remitting tertians run out to so great a length. Yet I have seen every year a few of the continual kind, which began with great mildness, and increasing by slow degrees, broke out violently in the third or fourth week; and soon after ended in intermittents; though some of them have continued without any considerable interval, for six or seven weeks.

In the cure of tertians, the symptoms of the paroxysms are more to be regarded than the types of the periods; for *cæteris paribus*, simple, double, triple, intermitting, and remittent tertians, together with the semitermians, all require the same sort of treatment.

With regard to bleeding it has been warmly debated among both antient and modern authors where it ought or ought not to be used in tertian fevers. Much has been wrote on both sides; but the question appears to me too general to admit of a positive answer. CELSUS* has justly observed that “medicines differ, “according to the nature of the climate; one kind “being necessary in *Rome*, another in *Egypt*, and a “third in *France*.” And since we daily meet with a remarkable diversity of symptoms among fevers of the tertian tribe even in the same climate at the same season of the year, it cannot surely be surprizing that any one remedy is not equally beneficial in all cases, and at all times.

For my own part, when I was called early enough, in the beginning of these fevers I used to take away some blood (unless there was a strong contraindication) from people of all ages; namely, from robust adults

* De Med. Prafat.

adults ten or twelve ounces; from others a smaller quantity in proportion to their strength and years. And farther, if a violent head-ach, and obstinate *delirium*, and great heat or pains of the bowels were urgent, within a day or two, I repeated the bleeding. By which seasonable evacuation the vehemency of the paroxysms is somewhat diminished; the apyrexies become more compleat; the operation of emetics and cathartics is rendered safer and more successful; and the terrible symptoms, which often make their appearance about the height of the distemper, such as raving *sopor*, difficulty of breathing, inflammations of the *abdominal viscera*, &c. are either prevented or mitigated.

But if before I was called, the fever had already continued some time, and the mass of blood appeared to be too much melted down, or inclinable to a putrid dissolution, which is often the case, during the extreme hot weather, about the fourth period of the distemper, and is readily known by the great alteration of the patient's looks and his sudden loss of strength; or if the first paroxysms of the disease were attended with profuse evacuations, whether by vomiting, purging, sweating, or a hæmorrhage from the nose: In all these circumstances, I either omitted the bleeding entirely, or took away a very small quantity, though some importunate symptoms might seem to require a much larger evacuation.

But when bleeding is allowed to be necessary, it is asked at what particular time of the periodical revolution it ought to be performed? The ancients* believed that "to open a vein in the height of the fever, "was to destroy the patient;" and therefore they order you to wait for the intermission, or the hour on which the symptoms are generally most moderate. But the experience of the present age has taught us that this operation is safe enough, at any time of the
period,

* Si vehemens febris urget, in ipso impetu ejus, sanguinem mittere hominem jugulare est, expectanda ergo intermissio, &c.
CEL. I. II. C. X.

period, unless while the cold fit lasts, or is soon expected; or while the skin is covered with critical sweats. Of late years, encouraged by the example of some practitioners of reputation*, I commonly opened a vein in the beginning of the hot fit; by which means the sick were immediately relieved; the immoderate heat of the body (which is often productive of fatal effects) was diminished; and the critical sweats were brought on sooner, and in greater abundance. But when that time of the paroxysm was passed before my being called, I bled in the evening, when it abated or went off, that I might be at liberty next day to make use of the remission or intermission, which commonly happens in the morning, to evacuate the first passages.

When I first became acquainted with these diseases, the uncommon violence of their symptoms induced me to lay the principal stress of the cure on evacuations; and to have recourse to frequent bleeding upon account of the inflammations of the *viscera*; endeavouring at the same time by repeated cathartics to discharge the corrupted humours from the intestines: but when experience had convinced me that the bark was both a safe and effectual remedy in these circumstances, I then plainly perceived that such profuse evacuations were unnecessary if not prejudicial; and of late years, as I seldom omitted to bleed and purge once or twice, I rarely repeated either operation oftener.

In semitertians and remittents, which approach to the nature of continual fevers, I give a cathartic early in the morning of that day on which the symptoms are most moderate; hastening the operation with glysters (if occasion requires) so that it may be finished before the middle of the day, about which time the patient commonly grows worse. In true simple and double tertians there is generally an interval every morning, in which the purgative may be administered, but that
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* Astruc on Fevers, p. 71. Gourraigne de Febribus.

which succeeds the worst fit, is the most proper, as it is more calm, and continues longer than the other.

Proper evacuations being premised, if possible, within the first four or five days of the distemper, carefully examine the condition of the patient, during the third revolution, and determine accordingly in what manner it will be necessary to proceed. If the paroxysms of that revolution be neither longer, nor attended with more threatening symptoms, than those of the second: if the patient preserves his strength, bears his illness easily, and signs of concoction appear in the urine, I frequently trust the whole business to nature, which commonly terminates the fever about the fourth or fifth revolution, and, for the most part, with an increase of some of the natural evacuations; so that sweats, cloudy or thick urine, and bilious stools often supervene, and sometimes a spontaneous efflux of spittle, or a copious expectoration of pituitous matter.

But if the paroxysm on the fifth day be evidently the longest and most severe that has happened; if it be attended with any doubtful or dangerous symptoms; if the sick become giddy, feeble, and languid; in these cases, without delay, I have recourse to the bark; and the same evening, as soon as the sweats have procured a remission, I order two scruples or a drachm of it in powder to be given every two or three hours, or every hour and a half, so that five or six drachms may be taken before next day at noon, with as little interruption to their sleep as may be; and the assistants are strictly enjoined to comply punctually with these directions, lest if this interval escape, we should not afterwards have a favourable opportunity of giving a sufficient quantity of the medicine, as the fits about this period of the disease are wont to become double, subintrant, or continual. Yet it is not always in our power to put an immediate stop to the fever by this means: On the contrary, do what we can, it will often proceed in its career, and, in spite of all our attempts, run obstinately on to the seventh or ninth day: But the great advantage which accrues from the early
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use of the bark, is, that it invigorates the powers of the body, it prevents or removes the dangerous symptoms, and in tertians, which of their own accord would continue to the end of the second week or longer, it brings on a crisis sooner, and with much less disturbance. In short, to use the expression of one of the greatest promoters of medical knowledge in this age*, “ it proves an excellent assistant to nature, in what the ancients called the concoction and maturation of the morbid matter ;” and (I must add) in the expulsion of it likewise, sensibly or insensibly, by the most convenient outlets. For so far is it from suppressing any beneficial discharge, as some have asserted, that we daily observe a laudable separation in the urine, warm, profuse, universal sweats, plentiful bilious stools, and sometimes the hæmorrhoids and menses coming on after it has been used ; though it effectually restrains the colliquative night sweats, to which persons weakened by tedious intermittents are incident.

DR. HUXHAM in his Essay on Fevers, remarks that “ Sometimes quotidian, semi-tertian and tertian fevers, are very rife and cotemporary with epidemic pleurifies, and peripneumonies ; as particularly in† 1744 ;—The cold season, in some constitutions, bracing up the fibres so high, and condensing the blood into such a degree of viscosity, as to bring on these inflammatory fevers on taking cold, or other accidents ; whilst, on persons of a more lax system of nerves and fibres, and more weak watery humours, it only raised the powers of the oscillatory vessels so high, and warmed the blood so much, as to carry off the ill consequences of deficient perspiration, and ropy heavy juices, by repeated fits of a regular

* MONRO on the Use of the Bark in Small Pox and Gargrenes, Med. Essays, vol. v. art. x.

† Vid. Obs. nostr. de Aere & Morb. Epidem. Vol. II. Martii, Aprili, Maio, 1744.

gular intermittent.—Thus we often see persons of low spirits, and a leucophlegmatic habit of body, raised into a feverish disposition by the use of warm invigorating medicines, chalybeates, &c. And if this turn of nature be well managed, it generally ends in their perfect recovery. If you can change a slow nervous fever into a regular intermittent, you soon cure your patient.

“ It is commonly noted, that if the fever, from a regular tertian, runs into a semi-tercian, or quotidian, or greatly anticipates the time of the regular paroxysm; a remittent, or continual fever is forthwith the consequence.—And this is too often effected by a very hot regimen, or a too hasty use of the bark. Indeed we very frequently see that quotidians, and double tertians, (which, by the bye, are oftentimes the same thing) will not bear the bark, at the beginning; till the saline draughts, proper diluting attenuants, and in some cases, bleeding, purging, and vomiting have been made use of. In truth, I never think it prudent, in such kinds of intermittents, to give the bark, in any form, till after four or five paroxysms at least, and after having drawn more or less blood from persons pretty much inclined to the plethoric; and this method is more especially to be observed in vernal agues.

If an intermittent runs into an inflammatory continual fever, bleeding and a gentle cool purge will soon reduce it to its type.

But as some intermittents are apt to run up into an inflammatory fever, far the greater number, especially in the autumnal season, are disposed to sink into low irregular remittents, putrid or slow nervous fevers. It is not a very rare thing to find a quotidian fall into a tertian, thence into a quartan, and at last end in a dropfy; and this particularly in some seasons and places. This evidently shews that the fibres grow more and more enervate, and the blood very vapid and watery. Even vernal tertians, which oftentimes cure themselves in a favourable season, prove many times exceeding obstinate in wet, rainy summers, and the patients are exceeding apt to relapse on the slightest occasions: This

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was particularly observable in the wet, cold summers of 1734 and 1735.*

Perhaps it is the winter-cold, bracing up the fibres, that commonly puts a stop to agues in that season; for it hath been noted, that they are often very stubborn in a warm moist winter.

Improper evacuations by bleeding and purging, an unwholesome, gross glutinous diet, vapid ropy drinks, as stagnant heavy water, foul beer, and the like, render these agues very anomalous, obstinate and dangerous, and make them frequently degenerate into malignant, putrid, or slow nervous fevers; otherwise they end in dropsies, jaundice, or universal obstructions of the viscera of the abdomen, and frequently in diseases of the genus nervosum. In a word whatever takes down the spring of the fibres too much, and weakens the crasis of the blood, will be productive of these mischiefs; and this especially, when due perspiration is frequently interrupted by cold damp air, want of due exercise, gross heavy stinky diet, as fish, lettuce, cucumbers, and other watery insipid fruits, which are known to suppress the perspiration greatly.

These observations then evidently shew the necessity of using a warm, invigorating, attenuating regimen in the cure of agues, which affect persons of a lax habit of body, and a poor thin blood; in a particular manner when a wet, foggy atmosphere prevails. Under such circumstances the cortex of Peru, however good and carefully chosen, frequently proves ineffectual, unless assisted with proper alexipharmacs, as rad. serpentar. virgin. Contrayerv. myrrh, camphire, &c. After four or five paroxysms, warm chalybeates may be added with very great success. But never be too hasty in giving the bark, or chalybeates, where the patient hath a yellow cast of the countenance, a tense abdomen, and a very costive habit of body. In which case mercurial, saponaceous deobstruents with rhubarb, aloetics, regenerate

* Vid. Obs. nostr. de Aere & Morbis Epidemic. Vol. I.

regenerate or soluble tartar, should be premised ; nay they may in some cases be very conveniently joined with the bark.

THE eminent Morgagni, President of the University at Padua, remarks that “ In malignant and epidemical fevers, it is not of so much importance to counteract the fever, as it is to counteract that malignant quality which is joined thereto ; and which is, to the great increase of the difficulty in such a counteraction, almost peculiar in every constitution.

And certainly, unless you endeavour to overcome this malignant quality for the most part ; you do the same thing, as if you should endeavour to overcome a fever, which had its origin from the bite of a viper, by antifebrile remedies ; without paying any regard to the poison infused ; to make use of the same example, which I perceive, from the history of the royal academy of sciences at Paris*, the celebrated Du Quesnay has made use of also.

For which reason, we ought the more to give thanks to the providence of Almighty God, that, in so very great an obscurity, and variety, of cases, it has favoured us with a remedy, the powers of which, in overcoming some dangerous fevers at least, is proved by experience ; though the method in which it acts is somewhat obscure ; I mean the Peruvian bark.

For this remedy, although some of these fevers seem to have one kind of malignity joined with them, and some another ; as appears from the external causes and symptoms ; can nevertheless counteract the one and the other equally ; and subdue their malignity ; as I have learned both from my own observations, and those of others.

Nor was the matter which has begun to be thrown out of the blood, either upon the skin, or about the

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joints,

joints, by any means repugnant to the salubrious efficacy of the bark; not even when repelled inwards, from thence, by the force of the external cold.

For a very eminent cardinal was cured by the bark of a malignant fever, into which he had fallen, in consequence of such a repulsion; as I have written to you on a former occasion.* And that very famous man Haller was also cured thereby of a very violent fever, which had come upon him in consequence of a gout being thus repelled; and which was attended with an erysipelas of the face likewise: and this he relates in the remarks that he has made upon the hundred and fifty-second disputation, among those which he has collected and published, as “contributing to the history and cure of diseases.”

For it is past a doubt, that these things are not so much to be attended to, as this which I then spoke of; I mean, whether the fevers are periodical: that is, whether they are wont to have an intermission, or a remission at least; so as to afford us room to hope, that, by a timely and proper use of the bark, both the fevers themselves, and their attendant malignity, will be overcome.

Nor does the bark only overcome what is febrile; but even that which is not febrile; so that it does but recur periodically: although this effect is not so general, when the disorder is without any manifest fever: and as we have already said, that this has been observed, so we might now also confirm it by a more recent, and more clear observation of Stephanus Wespriemus; I mean, of an equally severe, and obstinate, hemicrania being overcome by the same remedy, after having been already exacerbated every fourth hour, for two weeks together; and not having remitted till after two hours.

And if this observation, which was made and published in the year 1756, could have existed fifty years before; when I at length with difficulty put to flight
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* Epist. 49. n. 30. & seqq.

that very severe hemicrania, which returned every day at the same hour, by the prescription of a number of different remedies; I should certainly have made use of none more readily, and perhaps more successfully than this; notwithstanding I had been ignorant of the mode in which it produces its effects.

And I could with the malignant and epidemical fevers, whereof we had begun to speak, were all periodical, as they are almost all of them joined with a various and obscure force of malignity; we should then have in this cortex a medicine, which, although we might be ignorant in what manner it operates, we might nevertheless try with a reasonable hope of success.

But they are very often synochæ, or continual fevers; and such as, if you dissect the bodies of those who have been carried off by them, either show nothing, as I have said in the beginning, which discovers the peculiar nature, and situation, of the principal disease; or show considerable and evident injuries of the viscera indeed, but such as, if you compare them with those symptoms that have been observed in the patients while living, you will naturally conceive to have been produced by some other latent and principal disease.

That is to say, by way of example, an inflammatory fever of the viscera, after dissection, shows the viscera to have been inflamed, whether it is benign, or malignant; but in the living patient if it be benign, it is alleviated by repeated blood-lettings: If malignant, it becomes worse, and is very soon fatal.

The cause of the difference is another principal disease being joined to it; as in that fever at Roan described by the celebrated Malouin, which, about the end of the year 1753, carried off a great number, in a very short time, in that place.

For by reason of the malignant acrimony of the matter which irritated the stomach and intestines, that inflammation was at length produced, which was found in those viscera, and was already degenerated into a gangrene: the other internal parts being unhurt, and particularly

ticularly those of the head; which otherwise had been troubled with a pain, that arose from a consent of parts, and increased every day so as to bring on a delirium.

The college of physicians at Roan, therefore, prudently and usefully determined, that the inflammation was not then to be attended to; as it either did not exist in the beginning, or arose accidentally in the progress of the disease: but that every method must be taken to eliminate that very acrid matter from the first passages; for from this, if it were left within, a permanent irritation is much more to be feared, than a transient one from purgative remedies, especially when they are of a milder kind."

AN ABSTRACT of Dr. TISSOT'S HISTORY of the EPI-
DEMIC BILIOUS FEVER at LAUSANNE*,
in the year 1755.

The Constitution of the Air.

"TO the violent heats in summer 1754 succeeded a hot autumn; in the beginning of winter, we had either perpetual showers or fogs, and the season warm. The weather remained thus till the third day of the following year, when there suddenly came on that violent cold, which by the 5th and 6th of January grew so intense over all Europe almost, that it fell but little short of that remarkable and since unparalleled frost of the year 1709. It continued very severe to the 14th of the month, then it abated somewhat, though the same frost still lasted till the 20th of February. March was showery; April hot, which is very uncommon in our country, that happening at that time to attend patients in the small-pox, I was obliged to renew the air
in

* * Lausanne is a large town in the canton of Bern, in Switzerland 45° 33 N. Lat. on the north side of the lake Geneva."

in the chambers from all quarters, and moisten the boards frequently with cold water. In the beginning of May, the severe cold returned with a northerly wind, and was very pernicious to the tender leaves and blossoms. The weather was unsettled during the whole month. Violent heat commenced with the month of June, and continued to the 23d of July.

The disease was not equally violent in all. With regard to its vehemence, it may be accurately enough divided into three classes. The first was attended with no danger, unless by being neglected it degenerated into a chronic distemper. The second, though not void of danger, yet as far as I know never proved mortal, except when either by wrong management, or no care at all, it was changed into the third. The third class was very rare, but always very threatening, and sometimes fatal.

The History of the Disease.

Patients of the first class complained first of a lassitude, weakness, weight particularly of the head, loathing of food, an uneasy and almost constant sensation of cold, insomuch that during the dog-days they would go with great pleasure to a kitchen fire; they were drowsy without sleeping; their mouth slimy; and their tongue foul with a whitish-yellow tenacious covering. After three or four days, sometimes later, a shivering came on towards evening, which harrassed them for an hour or two, sometimes longer: this was followed by a heat not vehement indeed, but troublesome and pungent, which communicated a smart heat to the fingers of the physician; in some this continued till morning, and then gradually went off without any sensible excretion; in others after some hours a gentle sweat came on, for I never saw it profuse, but it did not bring that placid interval, which succeeds the sweats of true intermittents. I heard frequent complaints of the head in the time of the paroxysm, but none of the chest. In the first days the pulse hardly differed from a natural one, except by its weakness; in the time of the shivering it was very small, during the heat quick, contracted

tracted, and frequent, yet not exceeding an hundred pulsations in a minute in an adult woman. When the paroxysm was ended, the patients remained in the same state of langour, which I described before, rising indeed out of bed, but unfit for all kinds of employment, torpid, lazy, dragging themselves from their chair to the bed, and from the bed to the chair, and not walking without reluctance. The paroxysm returned every day, but frequently varied from its first hour; neither was it always similar to itself in other circumstances. Nay, there were some patients, who without regard to any period, shivered and grew hot often in one day; I knew several in whom I could hardly suspect any exacerbation, unless from a little more anxiety and debility in the evening, but they were never free from the oppression of the langour, nor were they sooner cured than others. There were some, particularly of the older women, who scarcely complained of any thing else beside debility, loathing of food, and want of sleep. Some were distressed with a pain of their stomach; and what was common to them all, they did not recover till after some weeks. There were several patients whom, no such violent symptoms appearing as required the speedy aid of a physician, I did not see till fifteen days after they had been seized, and I found little or no difference in their symptoms from the others, save that the heat and debility had increased, and by that time brought them in danger of a slow fever. In the beginning of the distemper, the belly was bound, towards the end a little more lax; the urine during the interval was thin and crude, in the violence of the paroxysm a little more red; upon the decline of the disease it became concocted with a sediment. I found very few who had much thirst. Boys, women, and old people were principally subject to this species, men very rarely. Old men escaped the second. The third attacked only young men in the flower of life, from 15 to 40, and generally carried off the more robust.

The beginning of the second class was not very different from that of the first; but after some days every thing

thing was more aggravated, the weakness increased, a nausea followed the loathing of food, but the sick very rarely vomited spontaneously ; the heat was more brisk, and the paroxysms more violent ; at the beginning they did shiver, though gently, but afterwards scarce any coldness was perceived before the paroxysms ; but the heat grew gradually more intense, *generally in the evening* ; the pulse was more frequent, and upon trial, in some persons I was able to count one hundred and sixteen strokes in a minute. At this time several were distressed with most acute head-achs. After three, four, or five hours the fever remitted, and, as in the first species, without a sweat. Nor were sweats very desirable, for upon the decline of the distemper they did good, but during its height, both in this, and in the third species they were prejudicial ; for the more profuse they were, the more severe was the succeeding paroxysm. The patient had not a perfect interval, and this was the pathognomic symptom, whereby we might distinguish the second species from the first. The urine was small in quantity, thin, and reddish ; the natural stools few and small, the tongue dry, and covered with a yellow mucus ; they had scarce any sleep, but what was turbulent, with anxiety, and not at all refreshing ; the thirst was more troublesome than in the first species, and yet not so great as might have been expected from the heat ; the patient was quickly *emaciated with a pale yellow face*. The paroxysms were not so irregular as in the first species. By bad management the transition was easy from the second to the third class or degree.

The third class or degree, appeared to be a distinct distemper by itself ; for in several, although they made use of the best remedies from the first attack of the disease, and their disorder seemed to be restrained by them, yet on the sixth, seventh, or eighth day, all the more alarming symptoms came on. When I had left a person in the evening with the hopes of a milder paroxysm, I often found him next morning dangerously ill after a severe night, with a frequent and very quick pulse, *a beginning delirium, and a flatulent swelling of the abdomen*

abdomen, which two symptoms distinguished the third class from the second; then the paroxysms scarcely any longer preserved the least order in their attacks, but came on irregularly at all times; the pulse became so frequent, that the strokes could hardly be counted; there was a general subsultus of the tendons; the anxiety and restlessness were without intermission, the eyes fierce, twinkling and gummy: the delirium increasing, made some brisk, and approached almost to a phrenzy, in others it was more calm, and resembled a lethargy, in both cases it was dangerous: The first talked incessantly, the others were silent and morose, and made not the least complaint of the distemper, though by holding their hand frequently to their forehead, it was plain they had a violent head-ach. When the physician asked how they did, they looked stedfastly at him and answered in a brisk tone of voice, *Very well*. They did not know their friends, the flatulent swelling increased daily, especially about the hypochondria. The breath grew short, so that they almost constantly panted; a cough was an uncommon symptom; their stools were irregular, liquid, fat, colliquative, and *sometimes bilious*, which was good; often white and frothy, which was always a very bad sign, for it implied the retention of the morbid matter, and a spasmodic disorder in the motions of the intestines. Some few however were seized with a purging at the beginning; nor did things go better with them: Nay, I saw a young woman in this distemper, which proved fatal, who, as I was told, had been afflicted with a ferous discharge by stool for two months before the disease. In general a purging, which came on at the beginning, was hurtful, for it was always symptomatic; and although it was very fetid, yet it left the cause of the disease untouched; so that with the increase of these evacuations, the disease grew worse, to the astonishment of the by-standers. The urine was always crude; in other respects different every day, white, thin, oily, turbid, resembling that of cattle, red and colliquative; if there was any cloud it always occupied the upper part, which Hippocrates condemns. From paralytic spincters and the delirium,

the

the evacuations were involuntary and unperceived by them. In five I met with purple spots, to all whom they were mortal* ; there were either no hemorrhages at all, or they were fatal, no thirst, though the tongue was dry, black, and tremulous ; the voice was shrill, and there was an universal tremor, a gathering of the clothes, and catching at flies. After the greatest restlessness, came on the highest debility, which was followed by death. Sometimes, when the distemper was disguised in the beginning by the mildest symptoms, I was led to suspect some lurking mischief from the *small and quick pulse, a very gentle, but universal tremor, a sudden change of the countenance, and a certain kind of anxiety and moroseness, quite opposite to the mildness of the symptoms.* I remember a man addicted to drinking, upon whom the distemper gained ground so fast, that he appeared even on the third day to be beyond hope, with a very bad pulse, a shortness of breath to the highest degree, and a delirium ; he was relieved in a short time by a vomit. In this, as well as the other species, the paroxysms with regard to their vehemence, followed the form of a tertian, so that I have always observed the symptoms more aggravated every other day, and they died on the worst day, from the seventeenth to the twenty-fifth day. I know of only two persons who died after the thirty-fifth.

These are the principal and pathognomic symptoms of our epidemic distemper : Some varieties and more remarkable cases I leave till afterwards, to avoid repetition. The greatest violence of it continued from the beginning of June, to the end of October ; during which time, it became so epidemic, that hardly one in four of any family escaped it ; and in several houses, two, three, nay six, were ill of it at one time. Several were also seized with it in the following winter, which being rainy and warm, favoured epidemic diseases ; some severe instances

* When any purple or livid pustules appear on the skin, the hypochondria being tense and inflated, the patient generally dies. BOERHAVE. Aphor. 735.

stances I met with in the summer of 1756, and spring of 1757. There is then no year altogether so favourable, where simular distempers do not occur.

Method of Cure.

At first for some time, I used ipecacuan, but I presently found that this celebrated root had not in this case sufficient force; it had besides this bad property, that after the evacuation was over, it left the patient costive and sometimes thirstily; I was therefore glad to change it for the emetic tartar, which I hardly ever dropped after that: the dose, being proportioned to the age and other indications, was dissolved in eight or ten ounces of water, with an addition of a sixth part of syrup of capillaire. I directed the whole to be drank at two, three, or four draughts; and this method of dividing the potion succeeded happily in so great a variety of sick people as I attended, the generality of whose particular constitutions, I was till then entirely unacquainted with. There was another advantage attending this medicine, that being palatable it was not in the least nauseous, even to children and more delicate people. I sometimes made an addition of manna, though the solution of tartar alone seldom failed to procure stools, which I always reckoned of great importance; for besides, that in this way the much larger quantity of morbid matter is evacuated, it is the method nature points out for discharging the relics of the morbid matter. The effect of the remedy was, that generally in little more than half an hour; that is, some time after the second draught, there was an inclination to retch, which was followed by vomiting; and if the quantity of the discharge was judged sufficient, the remainder of the potion was not used; if not, it was drank; the vomiting brought up viscous matter mixed with yellow, bitter bile; then followed stools of liquid, yellow, fetid excrements. I often encouraged the vomiting, by plentiful draughts of hydromel; when it ceased, I promoted copious stools by giving at a spoonful each time what remained of the potion diluted in a large vehicle. Thus after the evacuation was
over,

over, the patient found himself better, with regard to his anxiety, debility, and sleep. The same method was followed by that celebrated practitioner, Walcrenghi, and has been recommended to posterity by G. E. Stahl, *for the method of cure, adequate to the removal of the peccant matter in these fevers, can be no other than vomiting and purging**.

After the first evacuation refrigerating laxative remedies were prescribed; and I never failed to observe, that those medicines, which before had hardly proved cathartic, having their force increased by the diminution of the morbid excrements, produced at this time two or three stools every day, always of a putrid nature. The langour was gradually diminished, and also the length of the paroxysm. After three or four days, if a plentiful discharge of urine afforded the signs of a concoction, we had recourse to purging by salts, manna, tamarinds, and now and then a small dose of senna. Sometimes when there was reason to expect that stools would be easily procured, it sufficed to dissolve two ounces of manna with some salt in their common drink in the morning; and a copious discharge of excrements followed, from that, there scarcely remained the form of a paroxysm; the skin grew soft, their sleep became composed; they no longer loathed their food, though they had not yet any desire for it. The natural heat was more slowly restored, and they were almost always cold. Then they took only a dose or two of their medicines every day; all the symptoms went off gradually, the bilious stools which were so salutary still continued, and both evacuated the morbid matter, and shewed that the viscera recovered their tone; for it was with us, as the famous Gallarotti observed it to be at Cremona, *we could safely hope for a complete termination of the fever, only while the stools continued bilious*. And indeed if we fell short of this happy appearance, I was obliged both to give the refrigerents longer, and in a larger dose, and to repeat the cathartic a third time, nay sometimes, but very rarely,

rarely, a fourth time. I do not remember an instance of a fifth purging being used. In lax constitutions, which laboured more under a viscosity than acrimony, I sometimes avoided aqueous liquors after the first purging, and ordered a potion composed of a large dose of tartar. regenerat. a small quantity of elixir proprietat. with the distilled waters of succory and citron-peel, and compound syrup of succory, adding oxymel, when the circumstances required it.

They who refused medicines, and after the first vomit laid aside all remedies unless perhaps toast and water or lemonade, of whom there were many, having the morbid matter lessened by means of the diet, which their loathing directed them to, gradually got the better of the fever indeed, but they recovered their health slowly, and imperfectly, and several of them were obliged after some months to have recourse to medicines.

If it was dangerous to give over evacuations too soon, it was also dangerous to continue them too long; and a man would be miserably deceived, if he imagined they were to be persisted in, till the appetite and strength were entirely restored. The inappetency and debility arose in the beginning of the distemper from the cacochymy oppressing the stomach and primæ viæ; and now at the end of the disease they were owing to a laxity of the fibres, the languor of the secretions, and a defect of good juices in the body. We must therefore here attend to the caution of Boerhaave, *what does good at one time, may yet be hurtful, if given at another, though in the same distemper*, and we had a sad proof of this by experience. For while some continued opening medicines with a view of discharging the morbid matter, which they blamed for these complaints, I have seen the disease protracted, the debility increased, and the excessive irritation of the gastric and intestinal nerves followed by the whole train of irregular spasmodic symptoms. These I never observed, if the cathartics were dismissed in proper time, and a suitable diet with exercise in the country, and some strengthening medicines were made use of. An infusion of bitters in wine was taken with great success.

CASE

C A S E 1st.

Being called in the middle of the night to visit a gentleman with a biliary ardent fever, I prescribed a clyster, and a draught of barley-water, which was at hand, with some drops of Hoffman's anodyne mineral liquor, which after agitations of mind, I have found an excellent remedy by drinking some tepid liquor after it. The symptoms abated, and in the morning I could safely give manna, tamarinds, and a small dose of emetic tartar, dissolved in a decoction of grass, of which he was to take three ounces every hour, and after this dose was finished, the same decoction of grass with juice of sorrel and citron. Returning in the evening, for the patient lived in the country, I found he had drank scarce half the purging draught, and but little of the acid ptisan, but he had taken the anodyne mineral liquor frequently, he had gone thrice to stool, and the discharge was bilious, his head which I left clear when I went away in the morning, was now confused; and his pulse very quick: the following night he passed without sleep, and the delirium increased. In the morning I prescribed the same laxative ptisan, and another of barley-water, an acid syrup, and spirit of nitre, and strong sinapisms to the soles of his feet. I took my leave, and every thing was set aside, a consultation is talked of, which met in the afternoon; instead of the fore-mentioned drinks, milk-whey with tamarinds is prescribed, instead of the sinapisms, blisters to the legs; next day every thing grew worse, no evacuations followed; the day after there was another consultation at six in the morning; he laboured under the greatest restlessness, and a strong phrenitic delirium, his pulse as before, frequent, small, and quick, which was very bad, *for phrenses with a strong tense and slow pulse are curable, hardly with a small and quick one.* Upon account of the delirium he is bled, which I remonstrated against in vain, he grows more outrageous, and his hypocondres become tense. Three hours after by the advice of the other physician, he is again bled in the foot, still against my judgment; the patient faints,

faints, and the delirium abated a little from his weakness, for it returned again with his strength ; several doses of an emetic medicine are given, but hardly any evacuation followed, he had a very bad night. Next day the result of the fourth consultation was, giving a strong cathartic ; his pulse was hardly perceptible, with a strong delirium : he had no stool ; in the afternoon a sharp clyster is injected, and there followed an immense discharge ; and by continued faintings an end was put to the life of this worthy man. I leave it to the judgment of physicians, whether the former method was preferable to the latter. Death certainly could not follow with more cruel symptoms, nor more rapidly ; all indications with regard to the strength were neglected, nor were any other remedies administered, but such whose futility I have demonstrated. Would the cold bath have done any service in this case ? The antients undoubtedly thought so, *for in a continued putrid fever, if the patient was not emaciated, and was young, the temper of the air hot, and the fever very violent, they permitted swimming in cold water.*

Similar histories may be seen every where ; nature points out the way, and reason confirms the method, why should we fear to follow it : former ages did, and succeeding ages will deride our cowardice, and those of our own times suffer for it.

C A S E 2d.

A German shoemaker, of Zurich, if I remember right, was seized with the epidemic fever in the month of October 1755. I was sent for on the third day, and ordered a vomit on the fourth, and other suitable medicines ; but the obstinate man drank very little, being averse to it, nor did he observe such a diet as I had prescribed ; on the eighth day I purged him ; on the tenth the tumid inflation was so great, that the skin of the abdomen began to grow red from the violent distension : his breath was very short from the impossibility of the descent of the diaphragm, his pulse was
small,

small, and what surprized me, he was almost free from a delirium. Being afraid of the mischievous consequences from a compression of all the bowels, and an obstructed respiration; finding no other cause but air rarefied by the bile, whose putrefaction he had not sufficiently corrected by drinking, and being satisfied from feeling the abdomen before, that there was no obstruction prior to the distemper; and having to do with a fullen patient who would hardly conform to rules, and employing my thoughts in searching for a remedy, which would most quickly strengthen the fibres, restrain the flatulency, and stop the putrefaction; I recollected the observations of the antients and some moderns, and my own experience with respect to cold water. Having weighed them all carefully, I ordered a linnen cloth, twice doubled, dipt in cold spring water, to be applied over all the abdomen, and to be changed every quarter of an hour, and the patient to drink as often, three ounces of the same water. In two hours the swelling of his belly subsided, his respiration became easier; in less than three hours a slight colic came on, which produced many large bilious stools, with a continued discharge of wind; the linnen cloths were taken away, the following night he slept, and next day his belly was soft, the fever much abated, and in a short time he got well, without changing his drink, which I often found exceeding salutary, and it is to be lamented that the use of water has grown obsolete. We give nothing now, unless it be prepared, and often spoiled by the apothecary's art. The wiser antients, when the concoction was perfected gave cold water, an excellent strengthener, and as much of it as the patient was willing to drink, as appears from the works of Hippocrates, Aretæus, Galen, Alexander, Cælius, Aurelianus, and others. Galen has even reproached his co-temporaries for neglecting the use of cold water, and calls them *Hydrophobi*. Among the moderns Fernelius, Hoffman, Van Swieten, Klokshof, Grainger, and many others have prescribed cold water, and added cautions for its use.

of

Of Bleeding in Bilious Fevers.

Those people who are fond of venesection, attribute every disease to the blood, and are incessantly talking of a plethora and stagnation, and omit bleeding in no distemper, will be amazed, that I have not made the least mention of it, though we frequently had heat, dryness of the skin, head-ach, a violent delirium, and acute fever, which might seem to require such an evacuation. But it is a sad misfortune to those, whose physicians make no enquiry after the cause, and are forward to stop all violent fevers by bleeding; for when the fever is increased after the operation, it kills the patient. It is now four years since I published my opinion, that venesection is never useful when there is not a plethora; I may add, except in the beginning of an inflammatory distemper, or while it is in a crude state, after violent exercise, being heated in the sun, a fall, and in people only, that strictly are not plethoric, but robust, sanguineous and florid. And far from changing my mind since that time, I every day meet with the mischievous consequences of bleeding, where these conditions are not found. I grant that redundancy of blood may bring on distempers, which indicate bleeding; but the blood repels distempers that do not arise from itself; for the more a person has of that vital fluid, provided he is not plethoric, and that is not frequently the case now-a-days, the better is his situation, and he is the more able to resist the production and attacks of other diseases. The more blood therefore he looses, the more obnoxious he will become to them; for it is absolutely certain, that an evacuation of blood from a sound man who is not plethoric, disposes what is left to a cacochymy, depravity, and the disorders proceeding from putrefaction.

It produces relaxation, and from thence debility with its consequent disorders, increases the irritability and paves the way for irregular commotions, as we learn by innumerable observations. For who has not seen bleeding followed by faintings, tremors flatulent spasms, as they are called, universal, or partial; a delirium, fever and convulsions: when improperly used to
several

several girls for fainting fits, or hysteric suffocations, it has brought on real and dreadful convulsive motions.

But it may be asked, would bleeding not abate at least, the frequency of the pulse, or the fever? I answer it neither did nor could do this, for while it aggravates all the causes of the fever, it is difficult to conceive how it can mitigate the fever itself.

And besides the observations furnished by our epidemic, we are not destitute of others to confirm this theory. While I formerly attended the hospital of St. Eloy at Montpellier, a custom prevailed there, which has been strongly recommended by the practical physicians Gouraigne and Fîles, of bleeding in the height of the paroxysm in intermittent and remittent fevers; and by this means I did not want opportunities of observing its effects in those distempers, which amongst the people of Guiene almost always approach to the bilious kind. And I solemnly profess that I several times found the pulse quicker after bleeding; but I never could observe that its frequency abated, or that the paroxysm was sooner terminated. Only the following accident once happened to a young man, who laboured under a tertian; a little after he had been bled the bandage was loosened by chance; in a short time he lost such a quantity of blood, that he had several fainting fits; his fever indeed presently ceased, which I would have taken notice of, as consonant to the doctrine of the ancients, but he was oppressed with a languor of long continuance. Two physicians had the care of the hospital, and they attended a fortnight each by turns: when one of them, the younger man, treated bilious and putrid malignant fevers by bleeding, purging, and cooling medicines, many patients presently lost the distemper and their lives together. The other, an older man, prescribing a vomit at their first appearance cured almost all, *speedily, safely, and with ease to his patients.*

Retens, Celsus, Alexander every where agree with Hippocrates, that blood-letting is improper in bilious, or putrid fevers. I must confess that Galen appears to differ, when in several places he prescribes bleeding

in putrid fevers ; but any body, who reads over his works attentively may thus solve the difficulty. He has wrote in such a manner as to advance several things often more from hypothesis than experience, he always supposes a fulness of the vessels, which is to be removed, before other medicines are administered ; but Galen is mistaken, and the building falls of course when the foundation is destroyed, and contradicting himself more than once whenever he lays aside the notion of a plethora, he proceeds upon no other doctrine than ours. In his *Method. Medend.* he affirms, *that bleeding cures neither obstruction nor putrefaction.** In the very treatise where he defends phlebotomy against Erasistratus, he sharply reproves those, who bleed indiscriminately in all putrid fevers ; there is one where bleeding does good, in ours it was hurtful ; in the first Galen would have made use of it, in the second he would have avoided it. Amongst the moderns Fernelius coincides with our sentiments ; *Bleeding is bad in a regular tertian, because it evacuates the useful and necessary humour, and leaves behind the impure and noxious, for in this fever the body is commonly wasted and the quantity of blood small ; and the acrid bile, the very fuel of the fever abounds and ferments under the cavity of the liver ; and as this is not removed by bleeding, consequently the morbid matter is not lessened by it. Nay if blood be discharged either spontaneously or by any operation, you will generally find the bile to rage more fiercely and the fever gain strength.*

I have hitherto opposed bleeding in bilious distempers by reason and authority ; we must now consider what light was offered by our fever. Among the common people I remember several, who died in a short time after bleedings quickly repeated.

Not to leave our work imperfect, it remains to be explained, why illustrious physicians from antiquity
down

* Lib. II. cap. xiv. Oper. Omn. T. vi. p. 278. In that and the following chapter he prescribes bleeding in putrid fevers ; whence then this opposition to himself ? in putrid fevers he forbids bleeding, upon account of the putrefaction and obstructions ; which he orders elsewhere for a plethora and inflammation.

down to our own times, have advised bleeding in putrid fevers. I have already touched upon this point; the reason then is this, that there are two kinds of putrid fevers, some simply putrid, in which phlebotomy is always hurtful, and which physicians who were truly skilled in the medical art, never attempted to cure by bleeding: but it must be observed that frequently men of fluent conversation, though destitute of all accurate erudition acquire the character of famous practitioners; and however illustrious they may be reckoned by their ignorant adherents, they are deemed by other physicians and impartial posterity pestilent quacks, whose destructive practice cannot be too cautiously avoided.

The second is of that kind of putrid diseases, where there is a concomitant inflammation, in which bleeding is an admirable remedy. We are not yet sufficiently acquainted with the theory of inflammation, or the manner in which its stimuli act, to be able to explain, why it is sometimes joined to a putrefaction, and sometimes not; experience has convinced us that it is so, and distinctly shewn the pathognomic symptoms of both cases; and every day's practice affords many instances of it; they are to be found both elsewhere, and in the elegant histories of epidemics published by the illustrious Huxham. Allow me to insist a little upon that which the celebrated Pringle has so accurately described. It is denominated indeed *a bilious fever*, but by an attentive consideration it will soon appear, that the appellation is not comprehensive enough; the ingenious author speaks several times of an inflammation of the stomach; there was a true inflammatory phrenzy, which he cured by antiphlogistics. When the inflammation was removed, it remained to combat with the bilious colluvies, which he judiciously dislodged by vomits and purging, which in distempers purely inflammatory are found very hurtful. But the Edingburgh physician had to deal with robust soldiers, young, and bred in the mountains, accustomed to drink spirituous liquors, and in fine, obnoxious to all the causes of inflammation, and in whom it very easily follows the application of a stimulus.

Thus

'Thus the first mischief of the putrid ferment was to produce an inflammation. If in such circumstances it had been attempted to vomit or purge before the inflammation was resolved, it would have been attended with the worst consequences. Such a distemper ought to be esteemed and treated like an inflammation of the bowels.'

Dr. SOLOMON DE MONCHY, of Rotterdam, in his Essay on the causes and cure of the usual diseases in voyages to the West-Indies, translated from the Dutch philosophical transactions, and published at London in the year 1762, remarks that, "it has long since been the observation of many persons, distinguished by their medical abilities, that the multiplying diseases, naturally the same, or only symptoms of or accessory to others, and the various appellations by which they have been distinguished, has at all times been an embarrassment both to the study and practice of physic, and has obstructed its improvement; as the tremendous catalogue of distempers, besides the load it charges on the memory, is a discouragement to many, and must finally be productive of perplexity and confusion.

Further, all the world knows, that one identical morbid cause according to its different force, its different seat, the difference of constitution, climate, season and weather, produces symptoms, which though they may differ widely in their external appearances, and especially in the degree of violence, yet the nature of the disease is the same, as being the effect of one and the same proximate cause; and therefore requires *the like method of cure*.

It has been the opinion of some, that the *ardent putrid fever*, belonged to the class of inflammatory disorders, though Hippocrates, by whom, it is termed the *kausos*, i. e. *febris ardens* or *burning fever*, places it among the summer diseases; and never among those of the winter and spring.

Another

Another difference between inflammatory and *bilious fevers* and the others of that febrile class, is, that in hot weather, the *former* are more *remittent* and the latter less.

Fevers are moreover observed usually to regulate themselves according to the greater or less force of their proximate cause, which is common to every form or variety, however they may differ in the number, violence, or complexity of their symptoms.

The dysentery*, though it occurs in the same season and from the same apparent causes as the bilious or remittent fevers, appears to differ essentially from the putrid or continued fever, because it ceases upon the accession of that fever."

Remarks on Venesection in Fevers.

With regard to venesection, it is generally found less necessary in hot countries and hot seasons, than in the cold; and its benefit in *putrid fevers*† is probably very limited, being proper only in the *first stages* of putrid fevers, or of malignant fevers caught by contagion;

* If the dysentery and putrid continual fever were both derived from the same cause, contagion could have no effect on the patient, or if any, it could only aggravate the dysenteric symptoms, and not suspend them. That the dysentery is often combined with the intermittent fever, there are numerous examples recorded, and in those cases the dysenteric symptoms instead of being suspended or banished, are aggravated by the exacerbations of the fever.—*Note*—If these are established facts, and if the remitting fever from marsh miasmata, is only a lower grade of the synochus icteroides, or West-India yellow fever, and the dysentery is only a modification of the remitting marsh fever, how came the disease to be suspended in the soldiers at Grenada by the yellow fever?

W. C.

† This author uses the term putrid and bilious as synonymous, though very improperly. The generality of writers, formerly denominated all fevers that were dangerous, but not contagious, putrid; and those that were both dangerous and contagious they denominated malignant.

W. C.

gion; and even then only when the patient is plethoric, or has a strong full quick pulse; from which circumstance the disease will appear more or less to partake of an inflammatory nature. In ardent *bilious fevers*, the access and progress of which are sudden and short, and attended with violent head-ach, immediately followed by strong delirium, the *lancet* has been found *indispensibly necessary*. With regard to the timing of venæsection, whether in the exacerbation or the remission of the paroxysm, this seems less material, than the necessary circumstance of bleeding very early in the disease.

Mr. Vanswieten found much bleeding quite unnecessary in the common fevers at Batavia, and sometimes very detrimental.

The pernicious effects of bleeding in putrid fevers are also attested by Hippocrates, Aretæus, Celsus, Alexander, Fernelius De Gorter of Petersburg, Glafs, Bianchi, Junker, Huxham, Tiffott, and many others."

The mode of treatment by the above author in other respects is nearly the same as that recommended by Dr. Tiffott.

Dr. LIND observes that "Intermitting and remitting fevers prevailed in their utmost violence in the year 1765, not only in Hampshire, but in many other parts of England, which seemed to have been increased that year by the unusual and excessive heat of the summer; together with an undiluted putrid moisture in the soil, and the long duration of easterly winds. The universality of this fever, together with its uncommon symptoms were at first alarming; but when the *lancet* was withheld, and the *bark* freely given in large doses, few died.--(*Diseases of Hot Climates*, p. 22.")

In the Low Countries, particularly Zealand, the most obstinate diseases of this kind frequently rage, and are particularly distressing to strangers.

Dr.

Dr. Wind, in his translation into Dutch, of my Essay on preserving Seamen*, has among other judicious remarks, the following observation relative to what I have there said of certain fevers.

He observes, “ that at Middleburgh, the capital of West Zealand, where his father and himself had practised twenty-eight years, a sickness generally reigns towards the latter end of August, or the beginning of September, which is always most violent after hot summers.

“ It makes its appearance after the rains, which generally fall in the latter end of July ; the sooner it begins, the longer it continues, being checked only by the coldness of the weather.

“ Towards the end of August, and the beginning of September, it is a continual burning fever, attended with a vomiting of bile, which is called the gall-sickness. This fever, after continuing three or four days, intermits, assumes the form of a double tertian, and leaves the patient in a fortnight, or perhaps sooner ; strangers, who have been accustomed to breathe a dry pure air, do not recover so quickly.

“ Foreigners, in indigent circumstances, such as the Scotch and German soldiers, who are garrisoned in the adjacent places, are apt, after those fevers, to have a swelling in their legs, and a dropsy ; of which many die.

“ Fluxes are frequent in September and October ; towards the latter end of which indeed the air becomes more healthy, and then few diseases prevail. At this time, those who have laboured under the fever sometimes suffer a relapse ; but then it is into a simple tertian, which seldom confines the patient.”

The Doctor farther observes, “ That those diseases are the same with the double tertian fevers, common between the tropics. Such,” says he, “ as are seized with the gall-sickness, have, at first, some flushes of heat over the body, a loss of appetite, a white foul tongue, a yellow tinge in the eyes, and a pale colour in the lips.

* Aanmerking XI.

sips. An emetic administered before the gall-disease appears, is serviceable. Bleeding is seldom requisite, unless in persons of a plethoric habit. The gall-sickness is removed chiefly by cooling medicines ; but, in October, the tertian agues cannot be cured without the bark.

“ Such as live well, drink wine, have warm cloathing and good lodgings, do not suffer so much during the sickly season as the poor people : *however those diseases are not infectious, and seldom prove mortal to the natives.*”

“ The most frequent and fatal diseases in the sickly season in Guinea are not of an inflammatory nature. Indeed so much harm has been done there by the lancet, in the hands of such as have read only Sydenham’s works, or authors who treat of inflammatory fevers only, that it is most adviseable for the inexperienced in such climates to abstain altogether from its use, and to trust the safety of their patients, in such cases, to vomits and the early application of blisters, together with the use of tartarum emeticum, in small doses, or of antimonial medicines of gentle operation, during the fever, and of the bark upon its first remission ; which will be found the most successful and judicious method of treating those fevers.

The loss of a small quantity of blood, in the beginning of a fever, does often neither good nor hurt ; and there are diseases incident to Europeans in that part of the world, especially in the dry season, which may require even a repetition of that operation. But during the rainy or sickly season, in the case of Europeans labouring under the fever, it is seldom necessary to take away blood ; and large and repeated bleedings are attended with fatal consequences. Nothing can be a plainer proof of the disposition of the air in this country, to produce resulting and intermitting fevers, than the common observation that those who have had obstinate agues in England or Scotland, almost constantly suffer a relapse when they come on this coast.

Bengal, next to Bencoolen, of all the English factories, proves the most fatal to Europeans. The rainy season commences at Bengal in June, and continues till October : the remainder of the year is healthy and pleasant.

fant. During the rains, this rich and fertile country is almost quite covered by the overflowing of the river Ganges, and converted as it were into a large pool of water. Diseases rage among the Europeans in the months of July, August, September, and October, attacking chiefly such as are lately arrived. Here, as in all other places, sickness is more frequent and fatal in some years than others. The distempers are fevers of the remitting or intermitting kind; sometimes they may begin under a continued form, and remain several days without any perceptible remission, but they have in general a great tendency to a remission. They are commonly accompanied with violent fits of rigors or shiverings, and with discharges of bile upwards and downwards. If the season be very sickly, some are seized with a malignant fever, of which they soon die: the body is covered with blotches of a livid colour, and the corpse in a few hours turns quite black and corrupted. At this time fluxes prevail, which may be called bilious or putrid, the better to distinguish them from others which are accompanied with an inflammation of the bowels. In all those diseases at Bengal, the lancet is cautiously to be used.

I have been favoured, says Dr. Lind, with the following ingenious observations by Dr. Bogue of Titchfield.

‘ The diseases most fatal at Calcutta, while I was there, in 1757, began with the rainy season, and were obstinate putrid intermitting fevers. The cold fit, which was excessively violent, continued often for twelve hours; and as the fever returned every day, the patients had not above four or five hours respite from it. During the rains, and for some time after, we had sick, at the same time, in this place, one half of the men in the Squadron under the command of the admirals Watson and Pococke. Out of three ships of the line, and a 20 gun ship, and those not fully manned, we lost in six months upwards of 200 men, most of whom died of these fevers.

‘ Camphire was found the best medicine in the fit. Bark and other antiseptics were administered in large quantities,

quantities, after first giving an emetic, and emptying the bowels. This fever reduced the patients in general to such a weak state, that Mr. Ives, then surgeon of that hospital, judged it absolutely necessary to give arrack in their boiled rice to those who were on the recovery, or who had not the disorder in a violent degree. He likewise generously supplied them with Madeira wine.

‘ In the inflammatory fevers preceding the rainy season, bleeding with caution was found of service; but as soon as the rainy season set in, the lancet was seldom or never used.

‘ A salivation generally cured the disease of the liver, if the spitting was brought on before matter was formed. In some the mercury produced a looseness, which also cured the patient. In inflammations of the liver, when it adhered to the peritoneum, which was generally the case, and a tumor appeared externally, it was several times opened with success.’

This gentleman again visited India in the year 1772, where he had, for three years, the superintendence of the naval hospitals. He is so obliging as farther to inform me, that when he was last in India, mercury was more in use on the Coromandel Coast, than it had ever been before. In bilious fluxes, when the common remedies failed, it was used with great success, either by unction or internally, obstructions in some of the viscera being then supposed to be the cause of the disease. Fluxes of long standing were seldom cured without it. In all bilious complaints, emetics were not so frequently given as formerly, being only intended to cleanse the stomach, but the greatest dependence was placed on mercurials, and purges given at a few days intermission, which was supposed to be the most natural method of carrying off the bile.

‘ At Senegal, in the rivers Gambia and St. Domingo, on the Coast of Guinea, at Carpenter’s River, near the Musquitoe Shore, in the West-Indies, and in many other places, I have been told, that almost all the European strangers, at their first coming, lose their appetite and colour, becoming yellow, and troubled with sickness or indigestion; and that gentle vomits are found suitable to the diseases in those climates. The

The fever with which they are soon afflicted, begins sometimes with a delirium, oftener with a vomiting; it will not bear *bleeding*, but blisters, camphor and the bark, are the appropriate remedies for it, as well as for contagious fevers. If the patient after the application of blisters, still continued bad, and was delirious, with a low pulse, some have *empirically* given from *five* to *ten* grs. of calomel, joined with camphor, which was said to remove the delirium. This circumstance would not have been mentioned (being a practice we cannot recommend) if I had not been informed, by some judicious and authentic accounts, lately sent me from the East-Indies, that mercury has been experienced a most useful medicine in the hipatitis, after the inflammation had been somewhat abated by bleeding and the neutral salts, &c.” *Paper on Infection, p, 78.*

OBSERVATIONS ON THE BILIOUS FEVER WHICH OCCURRED IN A VOYAGE TO THE EAST INDIES, IN THE YEAR 1766, BY DR. BADENOCH,
(Published in London Med. Observ. Vol. 4th, p. 156.)

“ JULY 16th. 1766, we came to an anchor to leeward of the Island of Joanna, (in the Eastern Ocean, near the north end of Madagascar, where the ships of the East India Company usually stop in order to wood and water.) The sick, chiefly scorbutics, to the number of about 40, were sent on shore to remain during our stay. The carpenters, coopers, and several others likewise slept on shore. July 21st. we left that Island, most of our scorbutics being recovered. During the remainder of that month, we were becalmed in sight of the Island. From the beginning to the 10th. of August, most of those who had slept on shore were attacked with bilious and remitting fevers of a bad sort. Few, if any of the other people of the ship, were seized with them, *from which it did not appear to be infectious.*

“ REMARKS

“ *REMARKS ON THE CURE.*

“ To expect success in treating these fevers, it appears to me necessary to pay particular regard to their different degrees of violence. For example, the bilious fever, in the north of Germany, is much less violent than the same fever is in Minorca; and this again, than those frequent in Africa, or the East Indies.

“ For the cure of the bilious fever most frequent while at sea, bleeding in the beginning, especially in athletic constitutions, was generally necessary; after which and the use of antimonial medicines and saline mixtures, the fever soon came to intermit; and then the Cort. Peru. being administered, a few days completed the cure.

“ But when the ships are in the ports of the East Indies, even though the fever runs high, blood-letting is so far from being adviseable, that I believe it is hurtful. Of the patients violently attacked with this fever at Joanna, I bled only two, one of which died the day following, the other escaped by soon after taking the bark. Mr. Bruce also bled two of his patients after leaving Mohila, one expired soon after, the other recovered.

“ Dr. James Lind in his Treatise on the Remitting Fever of Bengal in 1762, observes, that by taking away only a few ounces of blood in the remission, there followed such a prostration of strength, that they sunk under the violence of the next paroxysm.

“ During the rage of the Joanna fever, I began the cure with evacuants, &c. in expectation of procuring a plain remission or intermission; but I found myself much disappointed; for it assumed the appearance of a continual fever, with now and then violent exacerbations, under which several sunk. Fearing this might be the fate of the greatest part of the remaining sick, I without farther delay, gave between 30 and 40 patients in the different stages of the fever, Pulv. Cort. Peru. ʒi. in wine or wine and water every hour. Several with sunk
pulse,

pulse, and apparently within a few hours of their end, were relieved in a few hours after taking a few doses of the bark, and by continuing it for a day or two, recovered.

Dr. RUSH, in a paper read before the London Medical Society, August 8th, 1774, published in their 5th vol. at page 32, mentions, that of fifty or sixty patients which he had attended in bilious fevers, the two preceding summers and autumns in Philadelphia, he had the misfortune of losing but one, though he had constantly refused to comply with the solicitations of his patients with respect to *bleeding*. After emptying the stomach and bowels by emetic tartar and cathartic salts, it was his practice to watch the fever as closely as possible, and without waiting, as some have directed, till nature has thrown off something oppressive to the system, by a crisis of some kind, he threw in the bark as soon as he perceived the *least shadow* of a remission. These remissions generally continued four hours, in some longer, in others not quite so long, and occurred for the most part once in twenty-four hours.—“I must here add (says Dr. Rush) that I attribute my success in treating this fever to my giving the bark in substance, and in very large doses: If it ever fails of breaking the fever, it is owing to its being given in too small a quantity.” He acknowledges his obligations to Dr. Archibald, of the island of Nevis, for the freedom with which he used the bark, who had often given ʒss. of bark every half hour, for a whole day or night together in the West-Indies, and that it would stay upon the stomach when no other medicine could be kept there.

Dr. Rush has also published an account of the bilious remitting fever, which was epidemic in Philadelphia in the year 1780, of which the following is an abstract.

THE

“ THE spring of 1780 was dry and cool.

July and August were uncommonly warm. The mercury stood on the 6th of August at $94\frac{1}{2}^{\circ}$, on the 15th of the same month at 95° , and for several days afterwards at 90° .

The winds during these months blew chiefly from the south, and south-west. Of course they passed over the land which lies between the city, and the conflux of the rivers Delaware and Schuylkill, the peculiar situation of which, at that time, has been already described.

The dock, and the streets of Philadelphia, supplied the winds at this season, likewise, with a portion of their unwholesome exhalations*.

The remitting fever made its first appearance in July and August, but its symptoms were so mild, and its extent so confined, that it excited no apprehensions of its subsequent more general prevalence throughout the city.

On the 19th. of August the air became suddenly very cool. Many hundred people in the city complained, the next day, of different degrees of indisposition, from a sense of lassitude, to a fever of the remitting type. This was the signal of the epidemic. The weather continued cool during the remaining part of the month, and during the whole month of September. From the exposure of the district of Southwark (which is often distinguished by the name of the *Hill*) to the south-west winds, the fever made its first appearance in that appendage of the city. Scarcely a family, and in many families, scarcely a member of them, escaped it. From the Hill it gradually travelled along the second-street from the Delaware, improperly called Front-street. For a while it was confined to this street only, after it entered the city,
and

* The musquitoes were uncommonly numerous during the autumn. A certain sign (says Dr. Lind) of an unwholesome atmosphere.

* The dock, was a wide and deep trench, extending from the Delaware, in a serpentine course, near four squares, replete with mud and putrefying vegetable and animal substances, from whence most offensive exhalations constantly exhaled during the hot season, every ebb tide.

and hence it was called by some people the *Front-street Fever*. It gradually spread through other parts of the city, but with very different degrees of violence. It prevailed but little in the Northern Liberties. It was scarcely known beyond fourth-street from the Delaware. Intemperance in eating or drinking, riding in the sun or rain, watching, fatigue, or even a fright, but more frequently cold, all served to excite the seeds of this fever into action, wherever they existed.

All ages, and both sexes were affected by this fever. Seven of the practitioners of physic were confined by it nearly at the same time. The city, during the prevalence of the fever, was filled with an unusual number of strangers, many of whom, particularly of the Friends (whose yearly meeting was held in the month of September) were affected by it.

This fever generally came on with rigor, but seldom with a regular chilly fit, and often without any sensation of cold. In some persons it was introduced by a slight sore throat, and in others, by a hoarseness which was mistaken for a common cold. A giddiness in the head was the forerunner of the disease in some people. This giddiness attacked so suddenly, as to produce, in several instances, a faintness, and even symptoms of apoplexy. It was remarkable that all those persons who were affected in this violent manner, recovered in two or three days.

I met with one instance of this fever attacking with coma, and another with convulsions, and with many instances in which it was introduced by a delirium.

The pains which accompanied this fever were exquisitely severe in the head, back, and limbs. The pains in the head were sometimes in the back parts of it, and at other times they occupied only the eyeballs. In some people, the pains were so acute in their backs and hips, that they could not lie in bed. In others, the pains affected the neck and arms, so as to produce in one instance a difficulty of moving the fingers of the right hand. They all complained more or less of a soreness in the seats of these pains, particularly when they occupied the head and eyeballs. A few complained of their
flesh .

flesh being sore to the touch, in every part of the body. From these circumstances, the disease was sometimes believed to be a rheumatism. But its more general name among all classes of people was, the *Break-bone Fever*.

I met with one case of pain in the back, and another of an acute ear-ach, both of which returned periodically every night, and without any fever.

A nausea universally, and in some instances, a vomiting, accompanied by a disagreeable taste in the mouth, attended this fever. The bowels were, in most cases, regular, except where the disease fell with its whole force upon them, producing a symptomatic dysentery.

The tongue was generally moist, and tinged of a yellow color.

The urine was high colored, and in its usual quantity in fevers.

The skin was generally moist, especially where the disease terminated on the third or fourth day.

The pulse was quick and full, but never hard in a single patient that came under my care, till the 28th. of September.

It was remarkable, that little, and in some instances, no thirst attended this fever.

A screatus, or constant hawking and spitting, attended in many cases through the whole disease, and was a favourable symptom.

There were generally remissions in this fever every morning, and sometimes in the evening. The exacerbations were more severe every other day, and two exacerbations were often observed in one day.

A rash often appeared on the third and fourth days, which proved favourable. This rash was accompanied in some cases by a burning in the palms of the hands and soles of the feet. Many people at this time, who were not confined to their beds, and some, who had no fever, had an efflorescence on their skins.

In several persons the force of the disease seemed to fall upon the face, producing swelling under the jaw and in the ears, which in some instances terminated in abscesses.

When

When the fever did not terminate on the third or fourth day, it frequently ran on to the eleventh, fourteenth, and even twentieth day, assuming in its progress, according to its duration, the usual symptoms of the typhus gravior, or mitior, of Doctor Cullen. In some cases, the discharge of a few spoonfuls of blood from the nose accompanied a solution of the fever on the third or fourth day; while in others, a profuse hæmorrhage from the nose, mouth, and bowels, on the tenth and eleventh days, preceded a fatal issue of the disease.

Several cases came under my care, in which the fever was succeeded by a jaundice.

The disease terminated in some cases without sweating, or a sediment in the urine; nor did I find such patients more disposed to relapse than others, provided they took a *sufficient quantity of the bark*.

About the beginning of October the weather became cool, accompanied by rain and an easterly wind. This cool and wet weather continued for four days. The mercury in the thermometer fell to 60° , and fires became agreeable. From this time the fever evidently declined, or was accompanied with inflammatory symptoms. On the 16th of October, I met with a case of inflammatory angina; and on the next day I visited a patient who had a complication of the bilious fever with a pleurisy, and whose blood discovered strong marks of the presence of the inflammatory diathesis. His stools were of a green and black colour. On the third day of his disorder the rash appeared on his skin, and on the fourth, in consequence of a second bleeding, his fever terminated with the common symptoms of a crisis.

During the latter end of October, and the first weeks in November, the mercury in the thermometer fluctuated between 50° and 60° . Pleurisies and inflammatory diseases of all kinds now made their appearance. They were more numerous and more acute, than in this stage of the autumn, in former years. I met with one case of pleurisy in November, which did not yield to less than *four plentiful bleedings*.

I shall now add a short account of the METHOD I pursued in the treatment of this fever.

After evacuating the contents of the stomach and bowels, I gave small doses of tartar emetic mixed with Glauber's salt. This medicine excited a general perspiration. It likewise kept the bowels gently open, by which means the bile was discharged as fast as it was accumulated.

On the third or fourth day, in the afternoon, the pains in the head and back generally abated, with a sweat which was diffused over the whole body. The pulse at this time remained quick and weak. This was, however, no objection *to the use of the bark*, a few doses of which immediately *abated its quickness*, and *prevented a return of the fever*.

If the fever continued beyond the third or fourth day without an intermission, I always had recourse to blisters. Those which were applied to the neck, and behind the ears, produced the most immediate good effects. They seldom failed of producing an intermission in the fever, the day after they were applied. Where delirium or coma attended, I applied the blister to the neck on the *first* day of the disorder.

Where the fever did not yield to blisters, and assumed the symptoms of typhus gravior or mitior, I gave the medicines usually exhibited in both the species of that fever.

I took notice in the history of this fever that it was sometimes accompanied by the symptoms of a dysentery. Where this disorder appeared, I prescribed lenient purges and opiates. Where these failed of success, I gave the bark in the intermission of the pain in the bowels, and applied blisters to the wrists. The good effects of these remedies led me to conclude that the dysentery was the febris introversa of Doctor Sydenham.

I am happy in having an opportunity, in this place, of bearing a testimony in favour of the usefulness of opium in this disorder, after the necessary evacuations had been made. I yielded, in prescribing it at first, to the earnest solicitations of my patients for something
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to give them relief from their insupportable pains, particularly when they were seated in the eyeballs and head. Its salutary effects in procuring sweat, and a remission of the fever, led me to prescribe it afterwards in almost every case, and always with the happiest effects. Those physicians enjoy but little pleasure in practising physic, who know not how much of the pain and *anguish of fevers, of a certain kind*, may be lessened by the judicious use of opium.

In treating of the remedies used in this disorder, I have taken no notice of *blood-letting*. Out of several hundred patients whom I visited in this fever, I did not meet with a single case, before the 27th of September, in which the state of the pulse indicated this evacuation. It is true, the pulse was *full*, but never *hard*. I acknowledge that I was called to several patients who had been bled without the advice of a physician, who recovered afterwards on the usual days of the solution of the fever. This can only be ascribed to that disposition which Doctor Cleghorn attributes to fevers, to preserve their types under every variety of treatment, as well as constitution. *But I am bound to declare further, that I heard of several cases, in which bleeding was followed by a fatal termination of the disease*.*"

"Philadelphia became unusually sickly after the year 1778, during the late war, in consequence of the meadows being overflowed to the southward of the city, and of the cutting down of the trees by the British army, which formerly sheltered the city from the exhalations of the grounds to the north and north-west. From the repairs of the banks of the meadows, which exclude tides and freshes; from the cultivation of the grounds to the westward of the city, which were formerly

* If the malignant yellow fever is only a higher grade of the fever just described, how does it happen that the remedies which cured this, were, in the majority of cases, injurious, or at least useless in that fever? Diseases differing in degree, surely require remedies of the same kind, differing only in quantity or degree of power.

merly covered with filth, or with stagnating waters; and lastly, from the more regular cleaning of the streets, and the enclosure of a large and offensive canal which crossed two of the principal streets near the centre of the city, Philadelphia, from having been formerly the most sickly, has become one of the healthiest cities in the United States."

SIR GEORGE BAKER, in a communication to the College of Physicians of London, published in the 3d vol. of their transactions, relates, that in obstinate intermittents, which prevailed in London in the year 1782, he had observed evident good effects from small doses of calomel, taken two or three evenings successively, and then followed by a purgative of moderate strength. He also mentions the case of a siphilitic patient with a quartan ague, who had not a single return of the fever after the commencement of the salivation.

It appears from a quotation in the same communication, that Dr. Willis, cotemporary of Sydenham, had proposed to cure a young lady by inducing a gentle salivation, to which she consented; and that the fever ceased as soon as he had effected a salivation, which he was twelve days in accomplishing.

It appears from historical facts, collected by Sir George Baker, that the Peruvian bark, which Sydenham claims the credit of introducing into practice in London, belonged to an apothecary of the name of Talbor, whose cures were so remarkable and surprising by its use, that he was knighted by King Charles the II. Harvey, Lister, Hodges and Morton were all cotemporaries of Sydenham.

The same author says, that a medicine composed of arsenic and opium, (the dose of which was a very few drops in water) was taken by some people, and sometimes successfully; but that now and then violent vomitings, colic, and dysentery were the effects of it. He had also received information of an ague thus
cured,

cured, which was followed by a palsey of the lower limbs : and concludes, that it cannot be deemed to be a proper remedy for an intermittent fever, whilst an intermittent fever is less formidable than arsenic.

Dr. CULLEN, in the first lines of his *Practice of Physic*, published in the year 1734, remarks, that, “ The paroxysms of pure intermittent fevers are always finished in less than twenty-four hours : and though it happens that there are fevers which consist of repeated paroxysms, without any entire intermission between them ; yet in some cases it is observed, that, though the hot and sweating stages of the paroxysm do not entirely cease before the twenty-four hours from their beginning have expired, they suffer however before that time, a considerable abatement or *remission* of their violence ; and, at the return of the quotidian period, a paroxysm is in some shape renewed, which runs the same course as before. This constitutes what is called a *remittent fever*.”

When in these remittents the remission is considerable, and the return of a new paroxysm is distinctly marked by the symptoms of a cold stage at the beginning of it ; such fevers retain strictly the appellation of *remittents*. But when it happens, as it does in certain cases, that the remission is not considerable, is perhaps without sweat, and that the returning paroxysm is not marked by the most usual symptoms of a cold stage, but chiefly by the aggravation or *exacerbation* of a hot stage, the disease is called a *continued fever*.

In some cases of continued fever, the remissions and exacerbations are so inconsiderable as not to be easily observed or distinguished ; and this has led physicians to imagine, that there is a species of fever subsisting for several days together, and seemingly consisting of one paroxysm only. This they have called a *continent fever* ; but, in a long course of practice, I have not had an opportunity of observing such a fever.

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It is, however, to be observed here, that the fevers of a continued form are to be distinguished from one another; and that, while some of a very continued form do still belong to the section of intermittents, there are others which, though still consisting of separate and repeated paroxysms, yet, as different by their causes and circumstances from intermittents, are to be distinguished from the whole of these, and are more strictly to be called and considered as *continued*. Such are most of those which have been commonly supposed to be *continued*; and those which by most writers have been simply named *continued*; and which term I have employed as the title of a section, to be distinguished from that of *intermittent*.

I shall here add the marks by which, in practice, these different continued fevers may be distinguished from one another.

Those fevers of a continued form, which, however, still belong to the section of intermittents, may be distinguished by their having passed from an intermittent or remittent form, to that of a continued; by their shewing some tendency to become intermittent, or at least remittent; by their being known to have been occasioned by marsh miasmata; and, for the most part, by their having but one paroxysm, or one exacerbation or remission, in the course of twenty-four hours.

On the other hand, continued fevers, to be more strictly so called, may be distinguished by their shewing little tendency to become intermittent or remittent in any part of their course, and especially after the first week of their continuance, by their being occasioned by human contagion, at least by other causes than the marsh miasmata; and by their having pretty constantly an exacerbation and *remission twice in the course of every twenty-four hours*. In both cases, the knowledge of the nature of the epidemic for the time prevailing, may have a great share in determining the nature of the particular fever.

With respect to the form, or *type*, of fevers, this further may be observed, that the quartan, while it has the longest interval, has, at the same time, the longest and
most

most violent cold stage; but, upon the whole, the shortest paroxysm: That the tertian having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage; but a longer paroxysm: And, lastly, that the quotidian, with the shortest interval, has the least of a cold stage; but the longest paroxysm.

The type of fevers is sometimes changed in their course. When this happens, it is generally in the following manner: Both tertians and quartans change into quotidians, quotidians into remittents, and these last become often of the most continued kind. In all these cases, the fever has its paroxysms protracted longer than usual, before it changes into a type of more frequent repetition.

It has been rendered probable, that the remote causes of fevers are chiefly contagions or miasmata, and neither of them of great variety. We have supposed that miasmata are the cause of intermittents, and contagions the cause of continued fevers, strictly so named; but we cannot with propriety employ these general terms. For, as the cause of continued fevers may arise from semites, and may, in such cases, be called a miasma; and as other miasmata also may produce contagious diseases; it will be proper to distinguish the causes of fevers, by using the terms *human* or *marsh effluvia*, rather than the general ones of contagion, or miasma.

Nothing is more evident, than that blood-letting is one of the most powerful means of diminishing the activity of the whole body, especially of the sanguiferous system; and it must therefore be the most effectual means of moderating the violence of reaction in fevers. Taking this as a fact, I omit inquiring into its mode of operation, and shall only consider in what circumstances of fevers it may be most properly employed.

When the violence of reaction, and its constant attendant, a phlogistic diathesis, are sufficiently manifest; when these constitute the principal part of the disease, and may be expected to continue throughout the whole of it, as in the cases of *synocha*; then blood-letting is the principal remedy, and may be employed as far as the symptoms of the disease may seem to require, and
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the constitution of the patient will bear. It is, however, to be attended to, that a greater evacuation than is necessary, may occasion a slower recovery, may render the person more liable to a relapse, or may bring on other diseases.

In the case of *synocha*, therefore, there is little doubt about the propriety of blood-letting: But there are other species of fever, as the *synochus** in which a violent reaction and phlogistic diathesis appear, and prevail during some part of the course of the disease; while, at the same time, these circumstances do not constitute the principal part of the disease, nor are to be expected to continue during the whole course of it; and, it is well known, that, in many cases, the state of violent reaction is to be succeeded, sooner or later, by a state of debility, from the excess of which the danger of the disease is chiefly to arise. It is, therefore, necessary that, in many cases, blood-letting should be avoided; and even although, during the inflammatory state of the disease, it may be proper, it will be necessary to take care that the evacuation be not so large as to increase the state of the debility which is to follow.

From all this it must appear, that the employing blood-letting, in certain fevers, requires much discernment and skill, and is to be governed by the consideration of the following circumstances:

1. The nature of the prevailing epidemic.
2. The nature of the remote cause.
3. The season and climate in which the disease occurs.
4. The degree of phlogistic diathesis present.
5. The period of the disease.
6. The age, vigour, and plethoric state of the patient.
7. The patient's former diseases and habits of blood-letting.
8. The appearance of the blood drawn out.
9. The effects of the blood-letting that may have been already practised.

When

* And the *Synochus Ictericoides*.

When, after the consideration of these circumstances, blood-letting is determined to be necessary, it should be observed, that it is more effectual, according as the blood is more suddenly drawn off, and as the body is, at the same time, more free from all irritation, and, consequently, when in a posture in which the fewest muscles are in action.

Another evacuation whereby the quantity of fluids contained in the body can be considerably diminished, is that of purging.

At the same time, this evacuation may induce a considerable degree of debility; so, in those cases in which a dangerous state of debility is likely to occur, purging is to be employed with a great deal of caution; and more especially as the due measure of the evacuation is more difficult to be applied than in the case of blood-letting."

Dr. BLAKE, in his observations on the Diseases of Seamen, published in the year 1785, remarks, that, "Bilious remitting fevers arise in the same situations in hot climates, in which intermittents arise in temperate ones.

Seldom arise at sea, unless where there has been previous exposure on shore—In those cases, the persons that have been exposed to the noxious air of marshes or woods, are generally affected seven or eight days after such exposure.

The most *distinguishing symptom* is a copious *secretion of bile*, which attends it. The symptoms are peculiarly violent (to Europeans) at the beginning. This fever, when it arises merely from the effluvia of woods and marshes, has a natural tendency to remit. But in many of those that arose at Jamaica, little or no remission was to be perceived. It was distinguished from the ship fever by the bilious vomiting and stools, more violent delirium and head-ach, and by being attended with less debility. These men had been exposed to such causes as usually produce continued fevers, such as

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infection,

infection, the foul air of the French prizes, intemperance and hard labour. Some of them were affected with yellowness of the eyes and of the whole skin, but without the other symptoms that characterise the yellow fever, properly so called.

In this fever venæsection was generally beneficial at the beginning, &c. A remission was then procured by emetics, saline purges, and animl. preparations, with neutral salts, &c. p. 392.

When from a fresh accumulation of bile the fever appears to be kept up, a repetition of evacuants is necessary, and *calomel* will be found to answer remarkably well as a purgative, its stimulus being so extensive as to loosen and bring away bile, when the saline purgatives have failed of having that effect: And it will be still more effectual for this purpose, if given alone in a dose, from five to ten grs. and followed some hours afterwards by some other purgative.

If the fever should not yield during the first week, but takes an unfavourable turn, the pulse then becomes more small and frequent, there is a general agitation, the tongue is tremulous when put out, great thirst, dry skin and delirium.

In these circumstances, besides the continuation of antimonials in small doses, with diaphoretic anodines, and the occasional use of purgatives, blisters now become proper. Camphor combined with nitre, is also an excellent medicine at this period of the *disease*.

In protracted cases the free use of bark and wine or other stimulating or cordial remedies become requisite, without regard to the remissions or exacerbations."

Dr. B. MOSELEY, in his treatise on tropical diseases, 3d edition published in the year 1792, remarks, that "At the setting in of autumnal diseases, intermittents are always attended with a greater secretion of bile, than they are afterwards, when the season has farther advanced. And the earlier the autumnal sickly season commences, the more the liver is affected, and the greater

greater is the quantity of bile attending them. For which reason, bark at that time is improper, when given without perfect intermissions. A patient can take much more bark, without injury, in a December intermittent, than he can in an August one. Yellowness in the eyes, tension of the abdomen, and a cough, are generally produced by a few doses of bark, in the beginning of autumn; and this is an infallible sign, that the body is not properly prepared for it. But when the autumnal intermittents do not set in until November, bark, in general, may be taken with safety, without much previous preparation, because they are seldom attended with those excessive bilious secretions, and that febrile disposition, which accompany them in the earlier months.

Spring diseases, in hot climates, though not always strongly marked, have in general an inflammatory tendency; which tendency gradually declines with the season, and disappears in autumn.

The autumnal diseases, in Jamaica, in the year 1776, set in, in November; the season was cold and rainy. Fevers came on with a shivering; but a good intermission generally succeeded the first paroxysm; in which, if eight or ten drachms of bark were given, all went on well: if not, the fever returned the next evening, and the following day only a remission succeeded—bark then would not answer. The third fit universally ended in a low continued fever, which required early blisters, cordials, and stimulants, as the patients all sunk very much, and many died.

The type of diseases is very often dissimilar, in the same season, in a district only of a few miles. In hot, marshy, low situations, autumnal intermittents have generally a putrid tendency; and sometimes after a few paroxysms degenerate into irregular, low, fevers, accompanied with colliquative sweats, and diarrhoeas. Here the early use of bark, in every climate, is proper; and the almost indiscriminate administration of it, seldom attended with danger.

This locality of disease ought to be well considered, by those who write for the information of others; and
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should not be confounded with the endemics of a country, or of a climate at large: for such varieties occur in every part of the world.

On examining the situation of *Modena*, in Italy, I found many local circumstances combined to make it probable that TORTI's extensive administration of bark, had better reasons to support it than his theory; or than his adversaries admitted. However, TORTI adopted the important distinction, between a *corruptive*, and a *depurative* intermittent; which is a distinction, I wish to inculcate between the tropics. In the former, which chiefly belongs to the autumnal season, TORTI's doctrine may sometimes apply; and "ab ipso exordio per corticem suppressi poterit*;" but in the latter, if there be not an intermittent disposition in the season, or some local putrid tendency, it will be found that bark is not always necessary in the cure of intermittent fevers; and that frequently, by obstructing some design of nature, does great mischief, and particularly when given too early.

The notions of asthenia, and putridity, so universally prevailed in Jamaica, at the time of my arriving in the island, that the word *inflammatory*, as connected with fever, was scarcely known; and copious, or repeated bleeding, was in general considered as an agent of death.

There had been violent contentions formerly on these points, particularly as referring to the yellow fever: but no person had ever defined that fever with accuracy, nor considered it as a genuine inflammatory disease.

The two unfortunate physicians *Williams* and *Bennet*, at Kingston, who terminated their disputes on this subject by killing each other in a duel on the 29th of December 1750, both, adopted the opinion that the yellow fever was a *bilious fever*, and gave it that appellation; and though *Williams's* intentions of cure were rational,

* Therapeutices Specialis, Lib. I. cap. viii. p. 60. Ed. Venetis, 1769.

rational, yet it did not appear that he was able to distinguish this disease from others which are *really bilious*, and peculiar to that part of the world.

This want of discrimination had always existed in the West-Indies; and the consequence was, that cardiacs and refrigerants, evacnants and bark, emetics and bleeding, frequently, and fatally, usurped the place of each other."

According to the observations of the accurate Dr. Jackson, "the paroxysms of the fever of Jamaica are observed in many instances, to terminate in more perfect *remissions*, than the paroxysms of the endemic of North America, which is known to be fundamentally an *intermitting fever*. Hence authors are generally of opinion, that all the difference which appears to take place in those fevers, depends merely on accidental causes, viz. on the greater or less heat of the climate and moisture of the soil

The common fever in that part of Jamaica called *Savanna La Mar* from the year 1774 to 1778, was not only disposed to terminate of its own accord; but it was disposed to terminate on certain critical days, often at an early period, and by signs of crisis too clear to be mistaken; neither did the Peruvian bark, in the manner at least, in which it was managed, ever cut short its course with certainty. The endemic of America, on the contrary, often lasted long. It frequently indeed, changed to another disease, after a length of time; but no period could be assigned for its natural termination, especially in the northern states. Neither did the Peruvian bark, though its effects were so equivocal in the fevers of Jamaica, scarcely ever fail of stopping the progress of the fever. To which we may add, that the complaint which, strictly speaking, is called the inter-mittent or ague and fever, can scarcely be said to belong to Jamaica; at least it was not known at *Savanna-La-Mar*.

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The fever that chiefly prevailed at Savanna-La-Mar, was usually mild in its symptoms, and more regularly remitting in its form, than in most other parts of the Island. Savanna-La-Mar is situated close by the sea; its particular site, and the surrounding country, to the distance of several miles, is perfectly level; whilst in consequence of its being open to the sea on the east, it is visited early and constantly, by a salutary and refreshing breeze. It is however, almost surrounded on the north by a morass, from whence it might be suspected to be unhealthy, but this is not the case.

The sea at high water, particularly at spring tides, overflows the swampy ground, and in a great measure, perhaps, prevents the usual noxious qualities of marsh exhalations.

The prevailing fever in the southern states of America, often loses its distinctive marks of intermission, in the hot months of summer; whilst it approaches in other respects, so near the fever of Jamaica, as to be distinguished from it with difficulty.

This was particularly the case at Ebenezer in Georgia, in the year 1779, during the months of June and July. A cold fit was seldom observed in this place; unless, perhaps, in the first attack; lowness, languor, head-ach, pain of the back, and other disagreeable feelings, remained even in the most perfect remissions. The disease was likewise much disposed to terminate of its own accord, on critical days: Yet though these resemblances were very striking, the fever of Ebenezer was perfectly under the controul of the Peruvian bark, which was not exactly the case with those of Jamaica. But the fevers of the various islands in the *Ægean* sea, as described by Hippocrates, and of Minorca, by the accurate Cleghorn, bear the nearest resemblance to the endemic of Savanna-La-Mar.

The fevers of Italy, of different parts of the continent of Asia, as described by various writers, as well as the endemic of North America, seem to be degenerated or rather imperfect intermittents, than the disease commonly understood by the appellation of remittent.

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The different time of day at which fevers of a different type usually commence, is a matter of no small curiosity. The single tertian at Jamaica for instance, was constantly observed to begin in the forenoon, usually between the hours of eight and eleven; while those forms of disease that were evidently quotidian, or still more continued, as constantly began in the evening generally from four to eight. This seemed to be a fixed distinction, and it is an important one. (It is also repeatedly mentioned as a fact, by Dr. George Fordyce, in his Essay on Simple Fever, published in the year 1794, that the paroxysm of the continued fever always commences in the evening.)

This rule respecting the connection between the hour of invasion and the type of the fever, does not hold true in the different parts of the continent of America; for there the most usual hour of the invasion of the single tertian, was twelve at noon; though in some cases, the paroxysm came on as early as ten in the morning, or as late as two in the afternoon.

Of the bilious vomiting, so much insisted on by Galen as a distinguishing mark of the single tertian, I can only say, that I constantly observed such evacuations to be more frequent in the different forms of the tertian, than in those that appeared to be quotidian, or that approached nearer to a continued type."

"The general nature of the cause of fever, or the nature of its various modifications is a mystery, which we do not as yet know. We only know, that when present in a certain state of vigour and activity, it deranges or disturbs the actions and functions of the system; while we likewise know, that it does not always disturb every action or every function in the same degree. It has occurred too often to have escaped the most superficial observation, that where one part of the body suffers particularly, the others are often relieved in proportion. We frequently in this manner observe, that general fever is diminished by the appearance of local pain; or, on the contrary, increased by its removal. It likewise often happens from the same principle, that where the stomach and biliary system

system suffer much, there is less disorder in the other parts : and on the other hand, that where these sufferings are removed or mitigated, the general fever runs higher, and often continues high, till the same, or other local affections, are again produced. Thus, though we are totally ignorant of the intimate nature of the cause of fever, we still perceive very plainly, that it either possesses something in its own nature, or accidentally meets with something in the constitution of the individual, which determines it to affect the different parts of the body in an unequal degree. *It usually exerts its greatest force upon parts, which are preternaturally weakened by the general influence of climate, season, situation, or other accidental causes.* Hence bilious appearances are common in the hottest months of hot climates, pneumonic affection in cold and dry weather, greater degrees of vascular excitement among the temperate and more active races of men ; while symptoms of nervous affection prevail among the luxurious and enfeebled. The above, with other species of the increased action of the cause of fever on a particular part of the body, depend wholly, perhaps, on circumstances of accident ; yet it has so happened, that those irregular determinations have unfortunately been considered as the efforts, which nature employs to expel from the body a cause, which disturbs the economy of health. I shall not, at present go so far as to contend, that these determinations are not, in fact, intentions of nature ; but shall only beg leave to suggest, if they actually are intentions, that it is mere chance which determines whether they are salutary or fatal. It is a truth which nobody will deny, where the force of the disease is accidentally directed to an organ of excretion, or to a part of little importance to life, that the rest of the body is often proportionably relieved, and even that a recovery of general health is sometimes the consequence ; yet the contrary is the effect, where the functions of the part, upon which the force of the fever has been thus accidentally diverted, are of immediate importance to the action of living. The Gout, a disease, the cause of which bears no very remote

mote analogy to the cause of fever, may be adduced as affording an illustration of this truth. The proximate cause of gout, is equally hid from us as the proximate cause of fever. We know, however, that the one equally with the other, has a tendency to destroy life. We likewise know, that there is a power or principle in the constitution, which to a certain degree resists destruction. The nature of this power, however, is unknown. We are not only in the dark with regard to its nature ; but we can only form conjectures about the part where it principally resides.—We, however, clearly perceive its force and activity to be different in different parts of the body. We may next be allowed to remark, that where the cause of gout is in a certain state of modification, tumults, (which properly enough may be termed re-action,) arise in the system, and go on to continue till this cause or hurtful matter finds an outlet from the body, or a lodgment on one particular part. The outlets from the body are numerous : the parts on which the gout seems principally to fix its seat, are the extremities, where the power of resistance is smallest.—The vital principle, however, becomes weaker as man advances in years ; and the cause of the disorder seems then frequently to find accommodations in parts, which are less remote from the sources of life. This more especially is the case, where tone and vigour have been preternaturally weakened. Hence the stomach, the bowels, sometimes the brain, and even the heart itself suffer from the immediate action of this disease, in the latter periods of life. But though no person perhaps will deny, that the cause of gout finds readiest accommodation, (if I may so apply the term) in those parts of the body, where the vital powers are naturally weak, or have been accidentally weakened from various causes ; yet we may add, that it is likewise removed from the parts, on which it has been thus fixed, by such applications as excite their active powers ; or, in other words, which call forth the local re-action of the system. We may also observe, that tumults arise in the general system, in consequence of this repression

or repulsion of the morbid cause from a particular part; and that they do not in general cease, till an outlet is opened, or accommodation found in some other parts of the body. The above appearances, occur daily in the history of gout. They seem to bear a strong analogy to those irregular determinations, which frequently take place in fevers, and their cause perhaps is the same. We do not perceive any other law by which they can be explained, than the natural or adventitious state of activity of the powers of life, which resist destruction with unequal force in the different parts of the system: so that we shall be obliged to conclude, that those sufferings, which have hitherto been styled the efforts of nature, are in reality more of the passive than of the active kind.

The circumstances which I have now mentioned, combat the very existence of the opinion, which has been commonly received with regard to the *vis medicatrix naturæ*. I have hinted, that the extent and limits of that principle are narrow, and that the salutary effects are accidental. I shall next endeavour to shew, that they cannot, without danger, be made the basis of the general plan of cure in febrile diseases. The task is important, but the attempt may be thought presumptuous, as an opinion, contrary to that which I advance, has obtained almost the universal consent of mankind. I have no desire of changing names, or of making distinctions, where there is in fact no difference. I perfectly acquiesce in retaining the word *vis medicatrix naturæ*, provided it is limited to a certain mode of re-action, or to a power in the constitution of resisting destruction unequally in its different parts, in consequence of which, irregular determinations sometimes prove salutary by accident; yet I must add, that if we mean to denote by this term a system of laws, which have the best directed tendency to remove from the body a cause which destroys health, and endangers life, the opinion has a very uncertain foundation. There are few persons so ignorant, or so blindly devoted to the doctrines of *autokratia* as not to own, that the usually reputed efforts of nature,

ture, are often ill directed, sometimes pernicious : in short, that they are obviously the causes of death. The truth of this observation cannot be denied, and unfortunately it obliges the advocates of the *vis medicatrix nature*, to grant the conclusion, that the laws of the principle are imperfect. The works of the author of nature, as far as our limited knowledge can trace them, are universally without defect, if examined according to the plan on which they have been originally formed. If they appear otherwise, it becomes us to hesitate before we decide. We may not have comprehended the fundamental principle of the design ; but we revolt from the idea, that the execution would be left imperfect, had it been intended by the Author of our being, that the mechanism of the frame would be such, as should oppose and remove, in the most effectual manner, the derangements of the morbid cause. Defect and imperfection can have no place in the designs of the Almighty. Had it actually been the original design of our Creator, that the human body should be provided with a system of the best concerted laws for restoring its health, when deranged by the numerous causes of diseases, as it is impious to suppose, that those laws could be defective so we may reasonably conclude, that the effects of fevers would not then have been fatal. We find however, that fevers, as well as other diseases, are fatal to people of all ages and descriptions : and that nature's intention of cure, if they really are intentions, are often destructive to herself. I need scarcely remind the reader of examples of their pernicious tendency. Vomiting, sweating, increased discharges by stool, &c. are generally considered as the salutary efforts of nature : but instances are numerous, where the excess of those evacuations have obviously proved the causes of death. In the same manner, abscesses, which in the remote parts of the body, sometimes attend, and even sometimes perhaps influence the favourable termination of fevers ; in the brain, or in other organs of importance, are no less certainly the cause which destroys life. In both instances the design of nature, if it can be called a design, is the same. The
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force of the disease being turned principally upon one part, the rest of the body is in a great measure relieved from its sufferings;—but the health and structure of the part are hurt or destroyed by the change; and it depends wholly upon the accidental importance of the organ, upon which this diversion has been made, whether death or recovery is the consequence. Thus it often happens, that the reputed indications of nature prove the immediate causes which destroy the existence of the individual; a fact not reconcileable, with the infinite power and wisdom of the Author of our being.

I have insinuated, that the efforts of nature are uncertain and precarious. They depend on accidental determinations to different parts of the body; and I may add, that if we endeavour to investigate the cause, which directs the mechanism of the frame, to adopt one species of effort, or one mode of determination in preference to another, we shall not perhaps be able to find any other, than a difference in the states of the powers of life, which resist destruction with unequal degrees of force in the different parts of the body. Where there is the least resistance, either from the natural or accidental circumstances of the constitution, there the disease most obviously exerts its greatest force. Hence we are sufficiently warranted to conclude, that though the structure of the human body is perfect with respect to every purpose for which it is intended, being only endued with a principle, which resists destruction, or persists in continuing life to a certain degree; yet that it is extremely defective, if we consider it as a machine furnished with a system of laws, which have an invincible and well directed tendency to restore health by the most judicious and rational efforts. The restoration of health, in consequence of this re-action, or irregular determination which takes place in the system, is only a circumstance of accident. The skill of man sometimes succeeds, where the efforts of nature have obviously failed.

Of the particular cure of the fever of Jamaica.

THE fever, which prevailed in the district of Savanna-La-Mar, was naturally a disease of the remitting kind; yet circumstances were sometimes connected with it, in such a manner as prevented it from assuming its proper form. To remove those circumstances, which thus masked or concealed the real genius of the disease, was considered as the first step towards a cure. The accomplishment of this purpose, however, was sometimes difficult; neither could it always be effected by the same means. Thus it happened frequently in cases, where there was excess of excitement, or a high degree of inflammatory diathesis, that the remissions were scarcely perceptible; as it was likewise observed, that where there was a want of reaction, the paroxysms were often languid and obscure. In the one case, the remissions discovered themselves in consequence of bleeding, dilution and copious evacuation; in the other, wine and cordials determined the disease to assume its proper genuine form.

In the first place, evacuations were usually employed as the means of procuring remission, where the inflammatory diathesis prevailed in excess; I may add, that they were proper for the most part, and that they seldom failed of producing the effect. Bleeding was frequently necessary, and generally of service. Its efficacy, however, was often heightened by particular modes of management. Thus relaxation of spasms, and removal of inflammatory diathesis, more certainly followed bleeding, if the blood was drawn from a large orifice; if the patient was placed in an erect posture, during the operation; and more certainly still, if the lower extremities were at the same time immersed in warm water. When bleeding had been premised, and repeated according to the circumstances and urgency of the case, it was then customary to open the body freely: for which purpose, I have not found any thing answer better, than a thin solution of Glauber or Epsom salts, with a small portion of emetic tartar. The operation of this medicine was extensive. It might be so managed
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as to occasion nausea, or moderate vomiting; to operate briskly downwards, or to promote a gentle diaphoresis. Remissions were generally the consequence of this method of proceeding, where there was no defect in the manner of conducting it. But where it so happened, that the circumstances of the patient forbade the use of this laxative; or where it might not be proper to carry it to a sufficient length, benefit was derived from a powder, composed of nitre, camphire, emetic tartar and opium, given in pretty large doses, and repeated frequently. Remission, at least a great abatement in the violence of symptoms, was generally the consequence of this plan of treatment; particularly, if assisted by the plentiful dilution of watery liquors, by warm bathing and large glysters of simple water. It is superfluous to mention the use of blisters in cases of local affection; but it will be less expected, that this remedy should be recommended in fevers, where there is an excess of the general inflammatory diathesis.—I can, however, bear testimony to its efficacy. The manner by which blisters produce their effects, is not yet agreed upon among authors; neither do I pretend to throw any new light upon the subject; but I would beg leave to suggest, that the mode of affording relief in the present, at least, did not seem to be much unlike the effect of local affections, in consequence of which the violence of fevers is sometimes observed to subside.

I pursued the above method of procuring remission in these fevers, were there was real inflammatory diathesis prevailing in excess; but it so happened, that the signs of this diathesis were fallacious, appearing in some instances to be present, though the real genius of the disease was actually of a different nature; a circumstance, which occasioned a difference of management in conducting the method of cure. Excessive evacuations were not only unsafe in such cases, but in general had not any powerful effects in disposing the disease to assume a remitting form. Bleeding, however, was often found to be necessary, though it was seldom requisite to repeat the operation. The good effects which were observed to follow the use of cathar-

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tics, were not in general very remarkable; yet it was proper, in most instances, to open the body freely; for which purpose, no form of medicine, with which I am acquainted, answered better than a solution of salts with a small portion of emetic tartar, and sometimes with the addition of laudanum. In cases of local pain, blisters applied near the seat of affection were always of eminent service; and in cases of general irritability, they were often equally useful, when applied to the back part of the head and neck. A powder composed of nitre, camphire, emetic tartar and opium, was likewise employed with success; but the liberal use of warm bathing, was still more to be depended upon. No person, perhaps, will refuse consent to the method of proceeding, which I have hitherto recommended; but when I mention a free and bold use of cold bathing, even in an early stage of this fever, I do not expect the same concession. To dash cold water on the head and shoulders of a person in a fever, has an appearance of rashness and hazard. I can, however, produce the testimony of repeated experience for the safety of the practice, no less than for its success in procuring remission; and shall therefore consider it a duty to recommend it warmly to the public. Wherever it was employed,—and the cases in which it was tried were numerous, a calm and equable perspiration, additional tone and vigor, with great abatement of irritability, were constantly observed to ensue.

The paroxysms and remissions were generally distinct in the beginning of fevers, where the nervous system was principally affected; but often became less so, as the disease advanced in its progress; a circumstance which did not arise often from the nature of the complaint, than from the common method of treatment. Bleeding was often dispensed with in the fevers of the West-Indies; but vomiting and purging were indulged in with freedom. The distinction of paroxysm and remission was sometimes evidently rendered obscure by this practice; while it was likewise obviously restored again, by the use of wine and cordials, which excited the powers of life. In this species of disease, evacua-
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tions were seldom necessary; seldom indeed admissible in a great extent. Bleeding, unless under particular circumstances, was totally improper. Cathartics were sometimes dangerous, and antimonial vomits often sunk the patient irrecoverably. Blistering, on the contrary, even at an early period, was generally of service; as also were opiates, and a judicious use of the warm bath; but cold bathing with salt water, was, of all others, the remedy of the most powerful effect. I do not pretend to say, that it absolutely stopped the course of the fever; but I can say with truth, that it generally restored the distinction of paroxysm and remission, diminished irritability, and imparted a degree of tone and vigour to the system, which was justly considered as a sign of safety.

To procure remission in fever, distinguished by a prevalence of the putrescent tendency, is not in every instance an easy task. A remitting, with marks of specific putrefaction, is not a disease of common occurrence in Jamaica; but a fever with signs of putrefactive tendency, mixed with symptoms of great irritability, or a high degree of malignity, is not altogether rare. From the complicated nature of the disorder, the indications of cure are often difficult and perplexed. Bleeding is universally condemned; more, I believe, from theory than from actual observation. It was, and perhaps still is, a fashionable mode of reasoning, to impute the languors and other marks of debility, which are common in the fevers of the West-Indies, to a putrescent tendency in the system. Such symptoms however are in fact more generally the attendants, or distinguishing signs of fevers, where the nervous system is affected. In such cases, bleeding is obviously hurtful; in the one of which we now treat, (where such a disease actually exists,) it is not only a remedy of safety, but of very eminent service, previous to the application of cold, particularly previous to cold bathing, which may be used with freedom and boldness. Cold bathing, indeed, is the remedy on which we must principally depend. There are others which do good occasionally; but this is the only one I know,
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which has any very considerable effect in changing the nature of the disease. There is a general rule in the practice of medicine, which requires to be particularly remembered in those complicated species of fever, viz. that as the indications of cure are often embarrassed; so the appearances, which principally point to danger, are first to be attended to; while the plan of cure, which we determine to be the most proper, must be followed up with vigour and resolution. We ought always to bear in mind, that in dangerous and difficult cases feeble remedies, or even powerful ones timidly used, are of little avail. Cold bathing, employed with timidity, failed of doing good in some instances. I met with no example, where the boldest use of it did harm. It was seldom, I must again repeat, that it did not succeed in obviating irritability, in checking the putrescent tendency, and in imparting to the system that degree of tone and vigour, in which safety is observed to consist.

The method of procuring remission, in those fevers which were distinguished by local affections, or irregular determinations to particular parts, was nice, and sometimes difficult. Bleeding was frequently proper, especially, if there subsisted at the same time marks of a general inflammatory diathesis: but it was seldom sufficient wholly to accomplish the business. However, together with a judicious management of warmbathing, it greatly heightened the good effects of blisters, the remedy on which the principal dependence was placed. In fevers which were accompanied with uncommon pain of the head, I have sometimes found it serviceable to apply cold to the part affected; the feet being at the same time immersed in warm water, and blood flowing by a large orifice from the arm. I also frequently observed, that the general fever ran higher, though it likewise more certainly assumed its proper form, in consequence of bleeding, blistering, and the removal of local pain. In those fevers, where bilious appearances were the effect of accidental, irregular determination to the stomach or liver, the remissions were often obscure: neither did the method of treatment, which was generally

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adopted, seem to be well calculated to bring forth the natural, genuine appearance of the disease. Bilious appearances. it must be owned, sometimes vanished, while the type of the fever became more distinct after the exhibition of an emetic or brisk cathartic ; yet there is cause to doubt if this depended on the evacuation of bile. It might be said, with more truth, perhaps, that the action of the emetic, by exciting the powers of the stomach and biliary system, effected a change in the irregular determination, which had formerly taken place to those parts. It was generally observed, where good effects did not follow the first exhibition of remedies of this kind, that harm was usually the consequence of a second. Vomiting, in short, was often rendered continual, and the distinction of paroxysm and remission was apparently destroyed, in consequence of the operation of violent emetics. Instructed by repeated examples of their hurtful effects, I at last scarcely ever employed antimonial vomits ; even the safest kind were used with caution. If it appeared, at any time, that the action of vomiting would be serviceable, camomile tea, or at farthest a few grains of ipecacuana were generally thought sufficient for the purpose. When this business was finished, a draught of cordial stimulating liquor, which had a tendency to promote a diaphoresis, was next administered. By this mode of treatment, especially if a blister was applied at the same time to the region of the liver, I have the satisfaction to add, that the bilious appearances for the most part vanished, and, if care was taken to support a determination to the surface, seldom ever returned during the continuance of the fever. Different seasons, and different situations of country were particularly distinguished by corresponding determinations. Thus a tendency to the bowels and biliary system was chiefly remarkable in the autumnal months, and in low and champaign countries ; the head and breast were oftener affected in the winter months, and in hilly situations.

I observed before, that it is the first object in the cure of fevers, to remove those circumstances, or accidental states of the body, which hinder the disease from assuming

assuming its proper form. Thus, to procure remission, appeared universally to be the first business in the cure of the fever of Jamaica; the next, and a very important one, is to prevent the return of the paroxysm. If we knew a remedy, which could be depended upon to accomplish this purpose with certainty, the cure of the disease would be easy; but the Peruvian bark, which almost infallibly stops the course of intermitting fevers in all countries, does not seem so indisputably to possess the same power over the usual endemic of the West-Indies.

Having mentioned the different methods of treatment, by which it was attempted to procure remission in the endemic fever of Jamaica, and having likewise endeavoured to ascertain how far we can go in preventing the return of paroxysms, it only remains to detail some particulars in the management of the plan of cure, where the different species of fevers were distinguished by a peculiar train of symptoms. It was observed in general, that fevers, with a moderate degree of inflammatory diathesis, seldom required our interference. The disease, after a certain duration, terminated usually of its own accord. After I had gained some experience of the general course of fevers, I usually allowed those, in which I did not perceive marks of danger, to go on their own way, that I might better discover those periods, at which the disease was naturally disposed to terminate. Thus where the paroxysms continued regular and distinct, the remissions perfect, and the vigour unimpaired, nothing material was attempted to be done. On the contrary, where the paroxysms were long, or less distinctly formed, with signs which indicated an approaching affection of the nervous system, bark, and other remedies, which excited and supported the powers of life, were given with the earliest opportunity. Changes from inflammatory diathesis to nervous affection, were observed to happen frequently on the fifth day. Bark, and such remedies as imparted tone and vigour to the system, were given without delay; and the disease terminated for the most part on the ninth. In those fevers, which were of a complicated nature,

in which signs of inflammatory, nervous, or putrid diathesis were variously mixed, blisters, applied in different manners, opiates, bathing and antispasmodics were often materially useful; but it would be arrogance to attempt to describe rules for the particular mode of application, which must vary more or less in almost every case, and which only can be learned from actual observation. There is one rule, however, in the treatment of fevers, of which the practitioner ought never to lose sight, viz. that wherever it was necessary to interfere, it is only the most vigorous decision which can do good. We cannot, as is said before, depend with certainty upon bark as a remedy possessed of the power of absolutely cutting short the cause of the fever of Jamaica; yet wherever the fevers of that country discovered signs of nervous affection, I do not know any thing in the materia medica, from which such beneficial effects may be expected. If it did not actually stop the disease, it was eminently serviceable in conducting it to a favourable issue. Opium, wine, snake-root, &c. were often observed to heighten its good qualities: but the particular use of such additions can only be regulated by circumstances. Wine has been freely recommended in fevers with symptoms of nervous affection; and it must be owned, that its good effects were considerable, not only in real debility, but wherever the cause of the disease acted by weakening or depressing the powers of life. Wine was likewise observed to be more useful in cases of mobility and weakness, than in cases of stupor and suspension of the nervous influence. But though it is actually a remedy of great value, its virtues appear to have been greatly enhanced. In many instances it was not proper in any quantity: in some, it was only proper in a small quantity, and in very few, perhaps, could we allow of the quantities which are given in common practice. At one time I carried the use of wine in the nervous fever of Jamaica, to a very great length; but I afterwards learnt, that a third part of the quantity would have probably answered the purpose better. Though it undoubtedly is an useful cordial and tonic, it is still inferior to cool air, and particularly to cold bathing.

It

It is an opinion, which seems to date its origin from Hippocrates, that bile vitiated in quality, or redundant in quantity, deserves to be considered as the cause of the species of disease distinguished by the name of ardent fever : and it must be confessed, that the frequent appearance of bilious discharges, in the fevers of hot climates, gives countenance to the supposition. From the frequency of this symptom, perhaps, the practitioners of the West-Indies adopted the idea, that bile is the cause of the fever of that country ; while the method of cure, which they usually pursue, has served to confirm them in their error. Prepossessed with an opinion of the prevalence of bile, they administer cathartics and emetics with a liberal hand. If bile appears in the first evacuations, they consider it sufficient authority to proceed ; if it does not appear, they conclude that the remedy has not been of sufficient force to reach the seat of the disease ; and therefore persist in their intentions, till the effect is at last produced. It is well known, that a repetition of cathartics and emetics seldom fails to produce the appearances of a bilious disease. Hence this symptom of fever, and all the dangers which follow it, are frequently the work of our own hands. That this is the case, appears from a relation of the method of cure, which I usually adopted in such fevers as were distinguished by symptoms of this nature at an early period. Instead of encouraging the vomiting, or promoting the evacuation of bile downwards, I generally did every thing in my power to moderate, or even to check it.—Sometimes I prescribed an emetic ; but it was more with a view to excite the action of the stomach and biliary system, than to promote an evacuation of redundant or vitiated humours. After the operation of vomiting was finished, a blister was usually applied to the region of the liver, and such a plan of cure was pursued, as supported a determination to the surface of the body, and gave tone and vigour to the stomach and general powers of life. By this mode of treatment, bilious appearances vanished speedily, or ceased to be troublesome ; while by the repeated use of emetics and cathartics, they generally

continued

continued long and often prevailed throughout the course of the disease. We may thus, I hope, conclude, without any unnatural inference, that there appears to be danger in encouraging those tumults, which have been usually considered as the efforts of nature. If they are in fact efforts, no person can pretend to deny, that they are generally precarious; nay, that they are often the immediate causes of death.

I have now detailed the particular steps of the method of cure, which I adopted in the remitting fever of Jamaica; a disease which I treated, in some respects, on a different plan, and, if self-love hath not blinded me, with more success than the generality of those practitioners whom I had the opportunity of knowing. I treated the disease with success; but I dare not affirm, as some have done, that under this method, of treatment, I never lost a patient. I proceeded, indeed, with diffidence and distrust of the powers of the medical art; venturing no farther than to support the general powers of life, and to obviate symptoms of a fatal tendency. Many pretend to cut short the course of fevers, by the force of a single remedy; but the means do not appear very obvious, and the effect was often precarious. I grant, that it is sometimes in the power of the practitioner to exterminate the cause of disease by forcible means, or to destroy a certain aptitude of constitution, in which this disease may be said to consist; but I must at the same time observe, that there is danger likewise, least he extinguished life. The bark, which has been so much celebrated for checking the course of fevers, though generally safe, was seldom effectual: others are frequently dangerous. During the time that I remained in the West-Indies, I observed attentively the state of body, which usually attended recovery; as likewise those appearances which preceded, and apparently were the causes of death. Tone and vigour, or a moderate degree of the state of body distinguished by the name of inflammatory diathesis, without local affection, afforded the surest signs of safety; general failure of the powers of life, or irregular determinations to organs of importance, were the most certain appearances

ances of danger. Thus, after obviating particular symptoms of a fatal tendency, it was the principal indication to support the general powers of life, or to excite the tone and vigour of the system. This was best accomplished by bark, wine, cool air, and above all, by cold bathing, which I am induced to consider as the most important remedy in the cure of the fevers of the West-Indies; and, perhaps, in the cure of the fevers of all hot climates. Though it might not absolutely cut short the course of the disease; yet it seldom failed to change the fatal tendency of its nature.”

The experienced LIND informs us, in his 5th edition, that, “ When an European is taken ill of a fever (in hot countries) during a season of prevailing sickness in those countries, it is necessary to endeavour, by the most efficacious means, to bring it as soon as possible to a remission, that the *bark* may be administered without delay.

With this view, the physician is to consider how far the violence of the fever in its first attack, will admit of bleeding; but he must remember that this operation is in general to be used with great caution, and the repetition of it with still greater in those climates.

The chief objects of attention in all such fevers, are the contents of the stomach and intestines. Upon the patient's first complaint, and during the first hours of the fever, while perhaps he is only chilly, or complains of alternate fits of heat and cold, the stomach and intestines should be immediately cleansed, either by a vomit, a purge, or by an oily purging clyster: after which the patient may immediately take an antimonial draught, and repeat it every six hours.

℞: Sal. C. C. grs. x. Suc. Lemon. ʒiij. vel.
qs. ad saturationem; Aq. Minth. pip. simp. ʒx.
Vin. Antim. guttas x. ad xl. (vel. potius
in vicem vini antimonialis, Tartari Emetici
quantam partem grani.) Misceantur.

It is to be observed, that according to the state of the stomach, the dose of this, or of other antimonial medicines, is to be increased or diminished, taking care that they do neither irritate or offend the stomach: to prevent which, especially if there be a tendency to retching or vomiting, a few doses of *tinctura thebaica* must be added to each draught; or if violent, the antimonial may be omitted, and the opiate be given in a full dose.

If the antimonial medicines after thoroughly cleansing the bowels, produce a sweat, the patient will probably have an intermission of the fever, or at least a mitigation of its symptoms, in twenty-four hours; when the bark if no symptom forbids, is immediately to be given.

The next day a return of the fever is to be expected, if a sufficient quantity of bark has not been taken. In this case the antimonial medicines are to be repeated during the continuance of the fever; or if the head-ach be violent, and the patient threatened either with a delirium or coma, a blister should be applied to the back, and recourse must be again had to the bark, as soon as the fever remits; to which (if he is much weakened by the preceding fits) some snake-root or camphire may be added.

If the antimonial medicines have not caused plentiful discharges by stool, (which they commonly do) a purge may be given occasionally in the absence of the fever.

For this purpose, a solution of salts in a strong decoction of cortex, is as palatable as any; copious bilious stools proving frequently salutary and critical.

A perfect intermission, the most desirable crisis, being by these means obtained, the bark must be plentifully administered in order to obtain a perfect cure."

EXTRACTS from DR. FORDYCE'S* DISSERTATIONS
ON FEVERS, published in 1794—5.

“ A fever is a disease which no knowledge of the structure of the human body, as far as it is at present known, no knowledge of the properties of the fluids, as far as they have hitherto been investigated, no knowledge of the action of the moving parts, as far as they have hitherto been observed, could give the smallest ground of supposition, that this disease could never have existed. In showing its history, therefore, observation of the disease is to be entirely adhered to, without any reasoning why, or how any thing in it takes place, or without any theory, as it has been called. It would be just as fruitless, at least for any useful purpose, as if a geographer were not to describe a country, but reason why a hill should be placed in one region, a valley in another; why one shore is rocky, another sandy; instead of actually giving the situation of the hills and valleys, the rockyness or sandyness of the shores.

A great many more fevers begin between eight in the morning and eight in the evening, than take place between eight in the evening and eight in the morning. There is a remarkable difference; according to the author's observation, at least ten fevers take place between eight in the morning and eight in the evening, for one that takes place between eight in the evening and eight in the morning.

It is to be remembered, that the history of fever should be given as it arises from observation, and not from any supposition. It is not therefore pretended to be understood, why this difference of proportion should take place. Some have supposed that the sun's passage over the meridian has an effect, but there does not appear to be any ground for this, because the number of first attacks of fever, which take place at noon, or near it, are not remarkably greater than those which

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* This author has given the most perfect description of fever that has ever been published. W. C.

take place two or three hours sooner or later. In short, fever is a disease, the whole of the appearances of which have been in no ways accounted for.

It has often been supposed that the redundancy of bile constituted an essential part of the attack of fever ; whereas it is a mere accident. If the pancreatic juice had been blue, and had any particular taste or smell, and the bile had been colourless, insipid, inodorous, or as much so as the pancreatic juice is, in that case, whatever has been said of the redundancy of bile as an essential part of the attack of fever, would have been said of the pancreatic juice. It is clear that no experiment hitherto made public has shown that any bile was ever contained in blood vessels, excepting in case of jaundice, and that, therefore, there can be no redundancy of bile, excepting as much as can be contained in the biliary ducts, and gall bladder. Much more than this is thrown out by twenty times in the attack of a simple fever in half an hour. Therefore, the bile thrown out is a consequence of the sickness, exactly in the same manner as it is a consequence of the sickness arising from the agitation in a ship at sea, and is not at all to be taken farther than as a mere accident in the attack of fever. The loss of appetite encreases, and the nausea and vomiting take place so instantly at the beginning of fever, that they can hardly be conceived otherwise than as an affection of the stomach itself.

All the causes, to which fevers can be ascribed from observations, are, certain substances applied to the body, as floating in the atmosphere, or applied in a fluid form to some part of the body. Sudden exposure to cold. Moisture in the atmosphere. Moisture of the cloaths, or other covering of the body. Indigestible food, or other substances affecting the intestinal canal. Sudden rising of the passions of the mind attended with anxiety. But it happens frequently, that fevers arise without any of these circumstances having been known to precede them. They are then to be referred to marsh effluvia or to contagious but invisible matter.

Of the particular secreted fluids which have been thought from their redundancy, or alteration of properties,

ties, to be causes of fever, bile has been the most frequent.

The ancients, whose knowledge of the properties of the matter of the body was very superficial, and depended solely on the external view, on which hypotheses were founded, supposed that the fluids consisted of red blood, phlem, bile, and black bile, as is well known to those who have looked into their writings, and that to a redundancy, or alteration of the qualities of these, diseases were principally owing, and this idea has continued down to the present day. Bile is conspicuous from its colour and taste, its colour is varied by substances that it meets with in the intestines. This difference of appearance has made it be considered still of great importance in disease. But modern enquirers have shown that it is a fluid secreted only by the liver, is not at all contained in the blood-vessels, but formed out of the substances which constitute the blood. There cannot, therefore, be any redundancy of bile in the blood-vessels because generally there is no bile contained in them at all. Bile may, however, and sometimes does get into the blood-vessels. When it does, being capable of passing through all the secretory organs, it soon shows itself in all the secreted fluids, by giving them a colour, and converting them into a yellow dye, and by tinging all the surfaces of the body that are exposed to the eye, of a yellow colour. When this happens, fever is never known to be produced, or to have followed, or taken place more frequently than in any other state of the body. Bile, therefore, when it does get into the blood-vessels, never can be accounted a cause of fever.

When the secretions of those glands which open into the intestinal canal are increased from any cause, the secretion of bile is increased along with that of the pancreatic juice, mucous, &c. When these encrease considerably, they are evacuated upwards or downwards. Bile being the only conspicuous one, from its colour and taste, has often been attended to while the others have been neglected. There is no evidence that in these cases the liver secretes a larger proportion of
bile.

bile than the other glands of the intestines their fluids. However that may be, apparently there is a great quantity of bile thrown out.

There is no instance upon record, nor none the author ever knew, where fever more frequently took place after such increased secretion and evacuation than in any other circumstance. In that sickness, for example, which is produced by the agitation of a ship, vast quantities of bile are often secreted, and evacuated, yet there is no instance of fever taking place; in consequence therefore, bile getting into the blood-vessels, or secreted in any quantity, cannot be admitted as a cause of fever. When so much has been said by many authors of great eminence about bilious fever, is their authority to be thrown aside entirely? Certainly no authority but that which rises from observation and experiment can ever be allowed in true science. It would be great pity to rob patients of their consolation in being bilious or nervous, but medicine is a science which never can be comprehended without much study, considerably more than can ever be given to it by persons following other occupations.

It happens not uncommonly, that there is no crisis takes place after the first attack of a fever, but a second attack takes place before the first paroxysm is much diminished, so that the disease at first puts on the appearance of a continued fever. In this case, the subsequent attacks are often in the fore part of the day, or if they should come on at the time of the ordinary returns of a continued fever, *which are in the evening*, they observe the tertian type; in either of which cases, we may expect in a tertian period or two, first an imperfect crisis, followed gradually with more perfect ones, till all the crises are at last complete. When the crises are very imperfect at first, they almost always grow gradually more perfect, until it often happens, that they become so perfect, as not to leave behind the least vestige of the disease.

In a temperate or cold country, when the patient is strong, and there are only slight remissions at the beginning of an intermittent, or it puts on the appearance
of

of a continued fever, excepting that the *exacerbations* do not take place in the *evening*, it is not necessary to give great nourishment, yet some is absolutely necessary. The Greek physicians appear plainly not to have allowed any food or drink whatever on the first days. This seems improper, for if no watery fluid were exhibited, the proportion of fluids in the body would probably be too much diminished by the vapour which flies off from the lungs and other external surfaces of the body, and by the necessary evacuations. Accumulation of sea salt could not take place if neither food nor drink were thrown into the body; but common sal ammoniac and phosphoric ammoniac are continually forming by processes which seem rather to decompose than to produce blood or other fluids, and would be accumulated. Yet these might not be detrimental, as water might be formed by the same decomposition, so as to render their solutions equally dilute.

Neither the solids nor fluids of a living body are subject to putrefaction; yet some portion of the fluids or solids, or both, seem to verge so near putrefaction, as to be converted into mucilaginous matters which are constantly washed off by watery secretions. Were the quantity of water diminished, they might not be carried off, but go still farther on to putrefaction, producing salts and vapours which might be pernicious. On this account it may be necessary to throw watery fluids in this case of the disease into the blood-vessels.

When the remissions and intermissions of the fever are very imperfect, or when the disease at the beginning puts on the appearance of a continued fever, *only that the exacerbations do not take place in the evening*, perhaps it is not necessary that much chyle should be formed, because when the intermissions become more perfect, there will be time for food of greater nourishment to be digested, without interfering with the paroxysms of the disease; nourishment may therefore be out of the question at this time of the disease.

Remarks on those remedies which appear *not to* have a beneficial effect.

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“The first of these is evacuation by *bleeding* ; a powerful remedy in many diseases, but in a regular tertian intermittent, it has not the least effect in preventing the paroxysm from taking place, rendering it more regular, inducing more perfect crisis, or rendering the intermissions more perfect.

There seems to be a great error in the view of remedies employed in fever ; practitioners frequently making no distinction between those used to cure the disease itself, and those employed to remove accidents that have arisen in it, although such distinctions are extremely necessary to be made. If, for example, in the course of a tertian, a pleurisy should happen to arise, taking away a quantity of blood would be a powerful remedy for the pleurisy, but although the pleurisy were removed, the intermittent tertian would go through its course just as if no blood had been taken away, excepting that the patient would be rendered weaker.

Those who are uninformed in medicine expect that diseases are to be cured by violent remedies and suddenly. The attention of by-standers is often drawn to practitioners who employ strong acrid medicines. This has frequently induced those practitioners who are least acquainted with the real history of disease to use the most violent medicines in their apparent effects, supposing that they would also be the most efficacious in curing the disease, while practitioners really well informed, find it often much more proper to leave diseases to go through their natural course, while they are careful not to let slip an opportunity of employing a remedy that is efficacious in carrying them off.

Purgatives have often been employed in regular tertians, with a view to carry off certain humours supposed to occasion the disease. But it has been found on the other hand that purgatives have re-produced the disease, after it has been carried off by other remedies, and that excepting in so far as they prevent costiveness, and the use of stimulating ones, to assist the action of sudorific remedies, they tend to render the disease longer in its paroxysms and the crises less perfect,

Evacuation,

Evacuation, either by bleeding or purging, is hurtful, in so far as it weakens the patient, and renders him less able to bear the repetitions of the paroxysms, and on this account are improper, although not so highly prejudicial as in continued fever, for in the intermissions there is time for food to be digested, so as to replenish the blood-vessels."

AN ABSTRACT OF DR. PATTERSON'S REMARKS, published at London-Derry, in the year 1795.

"SEVERAL authors of considerable credit, both ancient and modern, have maintained with Dr. Rush, that malignant distempers are caused by the effluvia from corrupted vegetables; and this opinion they adopted from a belief, that these kind of effluvia, acting as a ferment, produced a putrescent state in the fluids of the human body. But it appears from experiment, that the vapour of putrefying vegetables, instead of being a septic, is a strong antiseptic matter, and preserves animal substances by the fixed air which it contains*.

It has, indeed, been properly remarked, that ridiculous, if not dangerous doctrines have been proclaimed, founded on deductions from some of these experiments, namely, That, in the time of a prevailing pestilence, dead animals should be thrown into the streets and roads, to fill the atmosphere with a putrid smell; and that in an epidemic season, nothing is better or more salutary, than for one to smell, three times a day, either a necessary-house or a sheep-house†.

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* Alexander's Experimental Enquiry, chap. v.—Dobson's Medical Commentary on Fixed Air, sect. v.

† Alexander's Experimental Enquiry, chap. vii.—Although putrid matter, as Dr. Alexander shows, will preserve other substances from putrefaction, and although the air proceeding from such matter be noxious to the lungs (Priestly on Air, vol. 2, p. 254, et seq.) yet I do not admit that it is the parent of pure fever.

The effluvium, which exhales from a mass of putrefying vegetables, consists in a mixture of fixed air, inflammable air, vital air, and phlogisticated air. To this mixture of various airs, some part of the principles of the plant, namely, the oil and the acid, are superadded; being not totally decomposed, although the vegetable itself be so, but merely volatilized by the putrefactive process. Inflammable air abounds in those places where vegetables are rotting in heaps; and marshes furnish it in great quantity, from whence it has been characterized by the name of *marsh inflammable air*; but, in the latter case, it is extremely liable to decomposition, and to pass into the state of phlogisticated air*.

This ready decomposition of inflammable air is particularly observable in the diminution of common air by phlogistic processes, in which a true inflammable air is first produced, and in its *nascent* state, as Priestly terms it, is immediately decomposed, previous to the phlogistication of common air—But for the manner in which this is accomplished, I must refer the reader to Priestly's Works on Air, vol. ii. p. 266, and the succeeding pages; and in the 1st vol. p. 127, it is shown, that the volatile effluvium emitted from putrefying substances is phlogiston, loaded with that matter which contributes to affect the nostrils with the sense of smell. Hence we may conclude, that the exhalations from putrid vegetables, and from marshes, which may be supposed to injure the atmosphere, and extend their influence to any distance, consist principally of phlogisticated air.

Besides this product of plants in general, certain kinds yield, during putrefaction, a particular sort of air, of a very foetid smell, resembling the hepatic odour. This species of vegetables is found to contain sulphur and volatile alkali, which uniting, form a sulphureous ammoniacal air, inflammable and highly offensive;
furnished

* Now called by the French chemists Azote, or nitrogen gas.
W. C.

furnished plentifully by onions, radishes, &c. and still more abundantly by cabbages*.

The observation of Lancisi, that steeped flax and hemp are productive of what he calls a camp-fever, has been copied by many writers as well as Dr. Rush. It is an observation, however, which should be received with caution. For although the effluvia are extremely offensive, in this country, where prodigious quantities of flax are watered annually, and in warm weather, I never could trace our fevers to this source. The typhoid† fever, it is true, to which this kingdom is liable, appears to be most prone to commence about the same time of the year. But the flax-water cannot reasonably be accused of procreating the disease; because, many years ago, when the culture of flax was little known in Ireland, the fever was observed to arise about the same season‡.

In Germany, people seem to concern themselves very little about the danger supposed to arise from the effluvia of steeped flax. Nor do I find, as far as I have been able to search on the point, that this kind of effluvia has been charged with generating malignant diseases in Ægypt, a country early noted for its great cultivation of flax, and remarkable for a hot climate. On the contrary, the pestilential diseases, to which Ægypt is obnoxious, have been imputed to other causes, namely, to the annual inundation of the Nile, and the hot winds from the deserts§.

As to the celebrated instance of putrid cabbages related by Rogers, by which so many writers have supported their hypotheses, it should be considered, that

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* De La Metherie sur l'Air Pur, &c. vol. ii. p. 150, 51, 52.—Priestly on Air, vol. i. part. i. sect. iv.

† A remitting fever with nervous symptoms.

‡ Boote's Natural History of Ireland, chap. 24. p. 99.

§ Is it any wonder that Dr. Lind, was mistaken in the causes of the malignant yellow fever, when he erred so egregiously respecting the cause of the plague at Grand Cairo, which he has ascribed to the conjunct effects of the inundation of the Nile and the hot winds from the deserts?

when a malignant fever breaks out in a seminary, work-house, or manufactory, the persons interested are at great pains to find out some pretence for fixing its origin on another cause than that to which it is really due; and generally pitch upon something known to have emitted a disagreeable smell in the neighbourhood.

Another source of illusion is, that in our endeavours to account for epidemical disorders, we are apt to lay hold of every perceptible difference which we discover in the air, or situation of places that are attacked, from those that are free; and often, without duly examining and considering these diversities, conclude that we have detected the cause, which is perhaps involved in inextricable difficulty.

It does not appear, that in the West-Indies, the utmost care in clearing and draining swampy grounds, nor the setting in of cool winds, will prevent the recurrence of the yellow fever amongst troops. For we find from Dr. Chisholm that, although the best means were used, yet they did not preclude a fever of this kind, which began in Grenada in September, from returning the December following, with a'l its formidable and destructive symptoms. Neither does it appear, that inundations producing marshes ought to be accused of exciting the yellow fever; because Dr. Balfour's observations shew us, that this disorder occurs at *Banaris* and other places in *Bengal*, not less than three hundred miles distant from the reach of tides.

These are confirmed by other observations: We find, from the 9th volume of the Transactions of the Batavian Society, that a fever, which carried off nearly one seventh part of the inhabitants, prevailed in Rotterdam, after draining some marshes in the neighbourhood of that city. And Dr. Jackson says, that the fever at Savanna-La-Mar, in Jamaica, which is situated in a level country, and partially surrounded by a morass, was more mild in its symptoms, than in most other parts of the island. He, therefore, thinks that the neighbourhood of salt marshes is not so prejudicial to health as has been imagined; on the contrary, he believes it to be a healthy situation, especially respecting its disposition to generate febrile affection.

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Of the effluvia from putrefying animal substances.

If Dr. Rush be earnest in imputing the generation of fever to the exhalations from putrefying vegetables, he is on the other hand disposed to think, "it is much less common for the effluvia of putrid animal matters to produce fevers. How seldom do we hear of them in the neighbourhood of slaughter-houses, or of the work shops of skimmers or curriers?"

Together with the several kinds of air which the exhalations from putrid vegetable-matter contains, that from animal putrefaction is composed of a species of alactic fluids, called ammoniacal air and sulphureous ammoniacal air. These airs are inflammable and very foetid; and phlogisticate the atmosphere at least equally as the effluvium from vegetable putrefaction. They also contain certain volatilized substances, denominated oily, which modify their influence, according to the nature of the matter from whence they proceed. And although they are active, and emit a considerable stench, yet I so far concur with Dr. Rush, that I cannot assent to the doctrine of some writers, who conceive, that they constitute the miasmata which generate contagious diseases. Like putrid vegetable effluvia, I believe they are proper vehicles of contagion; and, therefore, are not principles, but accessories only. Or, in the language of the systematic, to whom Dr. Rush seems attached, every impurity of air diminishes its stimulus; and consequently impure air, or air blended with impure matters, without doubt debilitates, and produces asthenic diathesis, which prepares the body for the operation of contagion.

That slaughter-houses yield a considerable quantity of putrid animal effluvium, is certain; especially in places circumstanced as Cork is, in this kingdom. It is built on islands situated in a deep valley, and surrounded by several branches of the river Lee. These islands were naturally marshy, and subject to be overflowed by spring tides, until the ground was raised by art. The rest of the marshes, both on the east and west,
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are periodically covered by those tides; and, in the intervals, putrid vapours are exhaling from them. Continued ridges of hills, on which the suburbs are built, bound this vale on the north and south.

In the north and south suburbs, the slaughter-houses are numerous; the blood and odure from which are received in vast pits, where they are suffered to putrefy, and emit such noisome steams as corrupt even the most wholesome breezes that pass over the city; and, upon great rains, these cess-pools discharge, by the declivities of the hills, their foetid contents into the river. Nor is this source of impure air confined to these places; for great quantities of filth and offals croud the streets, and particularly the close confined alleys and lanes where that description of people reside, whose circumstances are peculiarly adapted to foster and propagate febrile contagion.*

That we seldom hear of fevers being particularly prevalent in the neighbourhood of the work-shops of skinners and curriers, and, I would add, in that of tan-yards, is not at all surprising. The processes, which the hides undergo in the hands of the tanner, prevent the putrid fermentation; and, consequently, the generation of that kind of effluvium favourable to the action of contagious miasmata, is primarily opposed. The smell issuing from tan-yards (which by the bye, very much resembles that from steeped flax) however offensive, seems to be very different from that which is emitted from putrefying animal substances; and probably is owing to principles which do not adequately phlogisticate the air. If this be the case with respect to tan-yards, certainly the work-shops of those tradesmen, skinners and curriers, who receive the skins almost entirely freed from the corruptible parts, will be still less chargeable with being the source of contaminating effluvia.

Several facts tend to prove, that very foul animal effluvia will not excite fever, without the concurrence
of

* Rogers on Epidemic Diseases, p. 36, 37.

of specific contagion. Two men travelling on foot in the county of Kent, were assaulted near a town on the road with an extremely loathsome stench, which they imagined arose from animal putrefaction, and which continued to offend them for the space of two hours. The sky was clear without the least cloud; and, from the direction of the wind, this vapour could neither come from the unwholesome air of Sheppey island, nor from the muddy banks of the river Thames or Medway, nor from the Rhumney marshes. Yet these men neither grew sick at the time, nor experienced any future inconvenience from this foetid exhalation.

The offensive smell, proceeding even from the excrementitious discharges of patients confined with non-febrile diseases, does not occasion pure fever. In a bilious colic, the evacuations both upwards and downwards, have been so intolerably offensive, as to produce stomach sickness and retchings in one case, and giddiness, vomiting, and tremor, in another; yet fixed fever does not appear to have been the consequence in either.

Many instances have occurred, in which thousands of dead bodies have been left to putrefy on the field of battle, without causing putrid fever; and it is well known, that in no case has the origin of this disease been traced to the effluvia of subjects in a dissecting room. Nor have fevers been observed to originate, or to rage more severely, in houses surrounding graveyards, in the middle of large towns, though the stench of the bodies accumulated in such receptacles, is often intolerably offensive.

In the cases which have been brought to shew, that infectious effluvia arise from putrefying bodies, it does not appear that they produced any symptoms resembling those of pestilential fever; on the contrary, they acted by direct stimulus, exciting inflammatory complaints; from which it may be inferred, that they are essentially different from febrile contagion.

I may now fairly conclude, that pestilential *fever* is not generated by marsh miasma, by the effluvia from stagnant water, nor by the exhalations from putrid vegetable nor animal substances.

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That the yellow fever at Philadelphia did not arise from the effluvia of the rotten coffee, is an inference strongly corroborated by the facts and reasoning contained in the preceding section.

But that the disease was really imported from the West-Indies by means of three vessels, the *melia*, *Sans Culottes*, and *Flora*, appears to be rendered almost certain from the judgement and accuracy with which it was traced to its former source. It was at first confined to a few persons in that part of Water-street contiguous to the suspected vessels, and from thence was propagated to other parts of the city, proceeding with the greatest violence through its proper channels—close unventilated lanes and alleys.

The College of Physicians, three only excepted, confirms this opinion. “No instance,” say they, “has ever occurred of the disease called the *yellow fever*, having been generated in this city, or in any other parts of the United States, as far as we know; but there have been frequent instances of its having been imported, not only into this, but into other parts of North America, and prevailing there for a certain period of time; and from the rise, progress, and nature of the malignant fever which began to prevail here about the beginning of last August, and extended itself gradually over a great part of the city, we are of opinion, that this disease was imported into Philadelphia by some vessels arriving in the port after the middle of July.*”

This declaration of the College, if it required any support, is materially strengthened by the testimony even of one of the dissentients, Dr. Redman, the president. For we are told by Mr. Carey, that from this physician's notes it appears, that, when the yellow fever occurred in Philadelphia, in 1762, it was introduced by a mariner, who arrived ill with it from the *Havannah*, and who, having taken lodging, communicated the disease to the family where he resided, from whence it spread by contagion to other parts of the city.

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* Letter from the College of physicians in answer to one from governor Mifflin, dated November 26th, 1793.

The citizens, therefore, (notwithstanding what Dr. Rush and others of the faculty endeavoured to inculcate) having good grounds to believe, that, on the late occasion, the malady was of foreign original, could not be actuated, as the Dr. alleges, by mere prejudice.

Moreover, on the presumption that the fever was engendered by the effluvia from either vegetable or animal substances putrefying upon the wharfs, how are we to explain its appearing in Kensington, where those miasmata could not reach undiluted, about the same time that Dr. Rush was called to visit Dr. Hodge's child near the supposed cause of infection?—On such a presumption, the cotemporary visitation of the disease in Kensington and Water-street is inexplicable. But on the ground of its being imported from the West-Indies, that occurrence may be accounted for in a satisfactory manner, by alleging that some of the sailors, passengers, or articles from tainted vessels made their way to Kensington very soon after their arrival in port. The fact indeed is, that some Danish sailors and other persons, who had been in the neighbourhood of the infected places, carried the fever to that village; and, that these people caught the disease by contagion, we must continue to believe, until we have better reasons for ascribing its origin to the damaged coffee, than those we are yet furnished with on the affirmative side of the question.

The same opinion is entertained by a well-known and justly celebrated professor, Dr. Duncan, who is very conversant in medical inquiry, and who writes thus: “Indeed, when we consider, that it is on all hands allowed, that the disease after making its appearance, was propagated only by contagion, it seems much more probable, that the contagion itself was imported, than that it originated in Philadelphia; especially when we reflect, that at the time of its first appearance in that city, and for many months before, it had raged with great severity in different West India islands, from whence there were frequent arrivals at Philadelphia.”

Nay,

Nay, further—In the histories of the yellow fever, furnished by the best authors, we find included the same symptoms, as those which Dr. Rush accounts characteristic of the disease*. We find the slow pulse, called by him the *fulky*, and by one of his pupils the *undefcribable* pulse—we find the indications of determination to the head—we find the bilious affections—we find costiveness—we find childhood not exempt—and we find the peculiar rapidity of progress. Can we, then, at all doubt the identity of the Philadelphia fever with that which prevails in the West-Indies?—And if the same, why might it not have been imported from these islands into that city?

The great difficulty, or in general the impossibility, of tracing the contagious stream to the particular spring from whence it issues, has caused much confusion and contrariety of opinion respecting the operation of infectious effluvia. Dr. Rush, for instance, imputes the germination of the Philadelphia fever to exhalations from putrid vegetable or animal substances; whilst he attributes its successive production to the effects of contagion. But an infectious, or morbid effluvia, emitted from the living body, must contain some elementary principle, differing from any composing that which arises out of dead vegetable or animal matter. This being the case, to say that miasma and contagion produce one and the same disease, would be saying that two dissimilar causes, acting on the like subjects, bring forth a similar effect; which would be alleging a physical absurdity.

On the contrary, as there is good reason for supposing pure fever to be an idiopathic disease, engendered by its own proper cause, which cause must consequently be uniform; and, as the epidemic under consideration is evidently a pure fever; it follows, that it must have originated from an infectious *fomes* derived from

* The authors here alluded to are, Sir J. Pringle; the two Linds; Dr. Rouppe, whose narrative Lind reckons full, clear, and masterly; Dr. Bruce, who was a native of Barbadoes, and whose account is original; Drs. Clark, Hunter, Blane, and Curtin.

from a febrile system. A different opinion leads to the diversification of fevers, which has done infinite mischief, particularly amongst the troops in the West-Indies in the last war.* In this particular, we derive considerable support from Dr. Rush's book, p. 40; for it is there maintained, that the proximate cause of the yellow fever, and of all other fevers, is the same. The identity of the proximate cause, then, being admitted, fever must consequently be a primary disease of a specific nature. That the bilious remitting fever, in whatever part of the world it takes place, is radically the same, Dr. Gardner thinks manifest from numerous observations; and Dr. Cullen seems confident, that in every species of contagious fever, except the exanthematous, the contagion is essentially one matter.†

Although we can but seldom ascertain the birth place of a spreading contagion, yet, as researches on this head have been sometimes successful, we may from thence presume, that zeal and perseverance, in our state of knowledge, would be attended with farther advantages. With respect to the plague, Sennertus avers, that whole families and towns have been infected with it, from the venom which had been pent up in clothes and beds for the space of many years. The variolous contagion will remain latent even in linen during several weeks, and sometimes for a number of months. Febrile contagion, which is less investigated, and which is seemingly a more fugitive thing than either the pestilential or variolous poison, has been known to reside in a garment several weeks.

Contagion sometimes will adhere with an extraordinary pertinacity even to seasoned wood‡; for although
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* See Robertson's Observations and Essay on Fevers; and Reide on the Diseases of the Army.

† Gardner on the Animal economy, sect. viii. p. 250 and seq.—Cullen's first lines, vol. i. chap. ii. parag. 82.—And Dr. Rush, p. 217, where we find Dr. Stevens, whose talents and experience are recorded in the same book, affirming that contagion is the native source of yellow fever.

‡ Lind on infection.

a sickly vessel has been well fumigated with the vapour of tar, yet the seeds of a malignant fever have broke out after some time in the same vessel, and the disease has been thence conveyed into others. And though all the sick from the tainted vessels were removed—though these vessels and crews were kept remarkably well ventilated and clean—yet the infectious venom remained long lurking in the timber.

No place is better calculated for discovering the source and progress of contagion, than the navy. An infectious malady can be more strictly traced in fleets, or in a number of different ships, than in towns and villages, “as all the ships which compose a squadron, are under the same influence of diet and climate, the circumstances of the men being likewise in other respects for the most part similar.” Hence a contagion may often begin in a secret manner, and spread itself unsuspected over a town or village; while in a fleet of ships its commencement and extension become more apparent, from its confinement to one or more vessels.

From the retentive disposition of goods and ships, few people have suffered oftener than the Philadelphians, by the importation of the contagion of the yellow fever from the West-Indies through those mediums. Along with other instances on record, I beg leave to call the reader's attention to the following: “A gentleman dying at Barbodoes (some years before 1761) his wearing apparel and linen, packed up in a chest, were sent to his friends at Philadelphia, where, upon opening the chest containing those tainted vestures, the family was taken ill; and the clothes being unluckily hung abroad to be aired, they presently diffused the contagion of this *yellow fever* over that town; by which the gentleman who furnishes me with this relation,” says Lind, “was an unhappy sufferer, and of which fever two hundred died*.”

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* The danger to which they are manifestly exposed from this source of infection, has no doubt been the cause of establishing the office of port physician.—why do fevers sometimes prevail in long voyages to hot climates, seeing that the perpetual winds between the

That the fomes of the yellow fever may remain in all its vigour for a considerable time, even in these islands, we have indubitable proof. Three months after this fever had entirely ceased in Haflar hospital, two nurses, lodging in the same chamber, were seized with fevers, and both became yellow; one died, the other recovered. By a strict examination, it was discovered, that they had concealed some shirts and clothes belonging to the infected men from America*.

When a nurse is seized, or when two or three persons in a family are attacked with a fever, it is imputed solely to cold, fatigue, grief, or the like debilitating causes; which seem to act no otherwise, than by strongly disposing the constitution to receive and animate the taint. And when such a disease appears in a boarding-school of boys or girls, the calamity is often ascribed to causes which are not in the least accessory. Of this Dr. Lind relates an instance; and I have been able, more than once, to trace very virulent contagions to those kind of places.

As the phlogisticated state of the air depends upon the separation of one of its constituent parts, whereby the remainder becomes capable of keeping suspended the contagious matter; it has been conceived, that, if this state of the air be restored to its former purity, by adding to it that portion of which it had been deprived by the pulmonary and cutaneous functions, its powers of elective attraction will be altered, and that which was before held suspended, will now be precipitated. This precipitation of the morbid mephitic (conjectured to be in some cases in the form of powder) being deposited upon certain substances qualified for receiving it, is supposed to constitute what authors have agreed to call a *fomes*.

From

the tropics, called trade winds, have a considerable influence in preserving the health of seamen, and that they are not exposed to marsh miasma, or vegetable exhalation?—This may be reasonably accounted for by supposing, that contagion is lurking in the timbers of the ship, clothes of the men, or other articles on board.

* Lind on fevers and infection, p. 2, 22, 26, 72, 74.

From some facts, however, it appears that the contagion is not soon, if it be at any time entirely, separated from the phlogisticated air. Upon visiting the cells where some men were confined with contagious diseases, Mr. Howard's clothes became so impregnated with the effluvium, that he was obliged to expose himself to the open air on horseback; and the vinegar, to which he was always accustomed to smell, became likewise so saturated as to be intolerably offensive*. An atmosphere charged with a peculiar odour, well known to those conversant in the small-pox, surrounds patients in that disease, even before the eruption of the pustles; and clothes, which are long retained about the sick, preserve the same odour a considerable time.

This theory enables us to account for a number of facts—why combustion injures the air in an epidemic constitution—why the upper strata of air in a room are pure, while the lower are vitiated—why ventilation is not of itself sufficient to purify tainted places and substances—why fomites are more virulent than the effluvia fresh from the sick, &c.

Dr. Clark, who has been already quoted, declares, that he is convinced both from his own experience, and from the information he received from others, that the remitting fever is every where the same, and requires the same treatment*. Although he thinks, that the genus of this fever does not require bleeding; yet, as this evacuation had been so generally recommended by eminent physicians, particularly by Drs. Hux and Cleghorn, he was induced to open a vein during the first paroxysm in three patients. The consequence was, the first did not bear the evacuation, his pulse flagged, and he was very delirious in the ensuing fit. The other two

* Alderson on contagion, p. 12, 20, 21—Darwin's Zoonomia, sect. xxxiii, 2, 8.

* I however put but little stress on Dr. Clark's opinion as he and Dr. Millar (in his observations on the prevailing diseases of Great Britain) as well as Dr. Robertson, have all confounded the typhus or putrid fever from contagion with the remittent from other causes.

two, who were seized suddenly with delirium, returned to their senses on performing the operation ; but before five or six ounces of blood were taken, they became faint, and the feverish paroxysm ran higher than in those who did not suffer the evacuation. For the future he resolved to be very cautious in blood-letting ; and, since that period, he laid it aside in every fever in warm climates, both at sea and on shore, unless accompanied with topical inflammation.

In cold and temperate climates, indeed, he grants that venesection may sometimes have a good effect ; at least taking away some blood in the beginning of a fever, he thinks cannot be attended with great danger. It may likewise be used at the commencement of warm weather, when many of the fevers are so mild as to require almost no other cure, than to cleanse the primæ viæ, and to produce an equable perspiration by relaxants. But when a person has continued a short time in a warm climate, he pronounces that blood-letting is extremely detrimental. “ I have frequently been induced to try it,” says he, “ when it seemed to be strongly indicated by great drougth, head-ache, flushed countenance, and oppressed pulse ; but I seldom ever saw it answer any good purpose.”

Dr. John Hunter found, that blood-letting did no good even in those cases which seemed to require it most, and, if copious or repeated, was always hurtful ; and that too where it seemed necessary to bleed freely on account of pulmonic inflammation. Dr. Balfour also, whose principal dependence, as before observed, is placed on other means, advises bleeding, but to be joined with blistering, provided they be indicated by the violence and obstinacy of the local affection, especially when seated in any vital or important part ; attending at the same time to the precautions, mentioned already, for preventing the bad effects which are apt to follow the evacuation*.

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* Doctor Huxley physician general to the British Hospitals found bleeding generally of use at the beginning of the bilious fever during the war between England and France in the West-Indies as
appears

In this point, then, until I have good reasons for the contrary, I must concur with the objectors (to Dr. Rush's practice) who contended, that bleeding was unnecessarily copious, and proved often destructive; that many of the indispositions, and much of the subsequent weakness of persons, who recovered after the free use of the lancet, might be ascribed to it; and that the blood-letting was prescribed indiscriminately, without paying sufficient regard to age, constitution, or the force of the disease. Beside, with the boasted efficacy of both the favourite remedies, purging and bleeding, how shall we reconcile the following confession? "Under every mode of treatment, it (the fever) seemed disposed after it was completely formed to run its course."

DR. WADE, in a medical paper published in 1793, is of opinion, that "the ideas entertained of the origin of fevers in warm climates, are probably erroneous, and that they may be deemed universally to originate in those latitudes from the bowels and their contents. From this persuasion, he relies chiefly on purgatives for the cure.

Venaesection, he regards as always a dangerous remedy, never to be employed previous to the operation of purgatives, even in the most inflammatory fevers.

He trusts the cure of all species of fever, to copious intestinal evacuation."

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appears from his letter to Sir John Pringle. Two practitioners in the East-Indies of the name of Yeates and McClean who from their practice and opinions appears to be deranged, condemn bleeding in diseases of every description.

W. C.

CONCLUSION.

FROM a review of the preceding Observations and Abstracts, it appears, that the remitting or bilious fever as it is commonly called, is only a variety of the intermitting fever, occasioned by an invisible matter, (known to exist only from its effects) derived from dead vegetable and animal matter, in a state of putrefaction; that it is distinguished by an evident remission or abatement, but not a total suspension or cessation of all the febrile symptoms once in the course of every twenty-four hours, most commonly in the morning, and a renewal and increase of the same before the evening; differing in this as well as other circumstances, from the typhus, or continued fever, occasioned by human contagion, in which there is almost always an exacerbation or increase of the fever later in the evening.— That the nearer it approaches to or resembles the intermitting type, the greater is the prospect of safety. That the paroxysms are prolonged and intermissions prevented, or rendered imperfect, by two opposite circumstances, viz: by a *phlogistic* diathesis, and by preternatural *depression of strength*.

That this kind of fever is not contagious or communicated from one person to another, and that it differs from the malignant yellow fever, not only in that respect, but in its causes, nature and symptoms, as well as in the remedies requisite for its cure; as must be strikingly evident to every one that is capable of tracing effects to causes and will take the trouble to read the account of its origin and progress in Grenada in the year 1793, previous to its appearance in Philadelphia, published by Dr. Chisholm, and recollects that it had not made its appearance in Philadelphia for the space of thirty-one years before, though the summers had frequently, during that period, been as warm and dry, and some of them more so, and the streets and wharves
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more replete with putrefying matters, and the air with the additional exhalations from the deep trenches and muddy docks, the receptacles of every kind of filth and impurity, as well as from the stagnant water of the suburbs and adjacent marshes, sources which had neither a local habitation or a name in 1793—And that the fever was occasioned by foreign contagion last summer, a committee of the College of Physicians has furnished the legislature of this state with ample and unequivocal evidence.

It also appears from the abstracts of the opinions and practice of different physicians, that no general or infallible rule can be established with regard to blood-letting in remitting fevers derived from marsh miasmata; for we find some of the same authors that recommend this remedy at one period of the disease or at a particular season, condemn it at a different season, or at a different period, or in a different situation.

General and indiscriminate recommendation or interdiction of blood-letting, besides being inconclusive, have been too often founded upon some favourite but uncertain hypothesis instead of being derived from observations of its effects in different constitutions, and under different circumstances.

That blood may be drawn when certain circumstances are present in every kind and variety of fever, if not with advantage, yet certainly without injury, no one conversant with medical facts will deny. The difficulty is to know those circumstances when they are present, and the quantity of blood requisite to be drawn to produce the greatest possible advantage. Symptoms are the only guides we have to this knowledge; but the symptoms which conduct to this knowledge can only be distinguished by men of accurate observation and extensive experience.

Great diversity of opinion also unfortunately exists among the physicians in the West-Indies, as well as in this country, respecting the effects of blood-letting in the malignant yellow fever, owing in a great measure I believe to its having been employed, too indiscriminately, too lavishly, too frequently, or at too late a period

of the disease, the nature and progress of which had not been sufficiently attended to. My experience and observations in the year 1793, as well as last year, warrant me in affirming, that I found blood-letting not only a safe, but an indispensable remedy in every case connected with unequivocal symptoms of inflammation; such as acute pain in the head, stomach, or bowels, and hard, tense, chorded or contracted pulse, whether it felt small or full, and especially if those symptoms continued without very sensible abatement more than twelve or fourteen hours.

On the other hand, I have always observed that it increased the debility, and accelerated the fatal termination of the disease, in almost every case which commenced with great prostration of strength, extreme anxiety and oppression and sense of weight about the epigastric and hypochondric regions, accompanied with a small, quick, irregular pulse, little alteration of heat on the surface, hurried and interrupted respiration, frequent and deep sighing, dejection of mind and constant restlessness, and especially, if those symptoms continued without sensible and distinct abatement, more than eighteen or twenty-hours.

I have also seen blood-letting, when employed in the remissions, where the symptoms were by no means alarming or unfavourable in appearance, bring on faintings, and convulsions, and in some instances, death.

It can not therefore, be too often repeated, that it requires that judgment which can only be acquired by extensive experience and attentive observation, to enable a physician to distinguish the circumstances which require or justify the employment of a remedy which seldom fails of doing either good or harm.

A P P E N D I X,

Exhibiting a Sketch of Facts and Reflections relative to the malignant Fever, commonly called the West-India Yellow Fever.

A CONTAGIOUS fever called the West-India yellow fever, has occurred at Philadelphia *six times* since the first settlement of the city, viz:—In the years 1699, 1741, 1747, 1762, 1793, and 1797. The same kind of fever prevailed in Charleston, the capital of South-Carolina, in the years 1700, 1732, 1739, 1747, and 1748. A few cases also occurred in the years 1792 and 1794, but it did not become epidemic in the years last mentioned. It prevailed in Virginia in the years 1741, 1747, and 1795. At Baltimore, the capital of Maryland, in 1794. At New-York, in 1743, 1791, and 1795. At New-Haven, in Connecticut, in the years 1743, and 1794. In the capital of Massachusetts in the year 1796.

An account of the contagious fever which prevailed in Philadelphia in the year 1699, is contained in the Journal of Thomas Story, Esq. City Recorder. The mortality was greatest in September, and ceased entirely by the 1st of November. Mr. John Gough, in his history of the Society of Friends, (vol. 3d, p. 516) says, this fever “was the disease which has since been called the yellow fever;” and that it had for a considerable time before, been very mortal in several of the West-India islands.

In the year 1741, it is recorded by Dr. Lind, in his 2d paper on infection, that the disease was introduced by means of a trunk of wearing apparel received from Barbadoes, which had belonged to a gentleman that died of the disease in that place; and that the disease spread from the family that received the trunk, into the town, and destroyed above two hundred of the inhabitants.

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A letter from Mr. Lardner, contains an account of its prevalence and mortality in 1747, and adds, that many whose business and families would permit them, fled from the city.

An account of its prevalence in 1762, has been preserved in the notes of Dr. Redman, and by him communicated to the College of Physicians. According to those notes, the disease was introduced about the latter end of August, by a mariner, who arrived from the Havanna ill of it, and took lodgings near the New Market, below Pine-street. The fever that year made but little progress above Spruce-street, but was confined principally to the vicinity of the New Market, and the streets west of it; spreading gradually from one family to another, till towards the end of September; from which time it gradually declined, and ceased entirely about the middle of October.

In 1793, the disease made its appearance the latter end of July, in three or four families about the same time, in Water-street, very near to a wharf where a French privateer called the *Sans Culotte*, with a prize ship from Europe, and two small vessels from a port in Hispaniola, lay; one of which landed several sick passengers immediately upon her arrival, some of whom took lodgings at Richard Denny's, within a very short distance from, and directly opposite to the wharf where they landed. The first victims to the disease were two of Denny's lodgers, one of which was attended by Drs. Cathrall and Physick. Dr. Hodge, prescribed mercurial purges for three of Mr. Le Maigre's servants on the 2d of August, whose house was one of the nearest to the infected vessels. For nearly two weeks the disease was confined to that neighbourhood, or to persons that had transacted business, or that had communication with those that were sick in it. But as the circle of contagion enlarged, the disease rapidly spread through almost every part of the city, and destroyed four thousand and forty-eight persons before the 10th of November, by which time it entirely ceased, having gradually declined from the commencement of frost.

In 1797, the disease made its first appearance the latter end of July, in the neighbourhood of Mr. Russell's wharf, a few paces below Pine-street, where three vessels lay; One of which had been in port all summer, one called the *Iris*, arrived from Oporto with wine, and took her station at the wharf on the 21st of July; and the other called the *Arethusa*, from the Havanna, on the 24th. The last mentioned vessel had been employed in transporting slaves from Jamaica to the Havanna, the latter end of June. The carpenter and one of the mariners died with symptoms of the yellow fever on board, during her passage, according to the deposition of Mr. Stephen Kingston, and a letter from Mr. Witch, two respectable merchants, who were passengers on board of the *Arethusa* to the Havanna. The captain also acknowledged to me that a negro boy died on the passage from the Havanna to Philadelphia.

The pilot, James Mulford, was attacked with fever on board the *Arethusa* in the night of the 25d. being the last of her quarantine near the Marine Hospital, and was taken to his lodgings immediately after his arrival in her at the city. I attended him in his disease, which soon unfolded its true nature, and came to a crisis on the 5th day from the attack.

On the 29th of July, the mate and cook of the brig *Iris*, the vessel from Oporto, which lay in contact with the *Arethusa*, were attacked with fever: The case of the cook, who vomited matter black as ink, and died on the 5th day, was communicated to the College of Physicians by Dr. Stewart who attended him. The mate's fever terminated favorably on the 3d day. Three more of the same crew were attacked with the fever, three days after the mate and cook and all recovered, though one of them became very yellow. G. Latimer, Esq. who resided at Pine-street wharf, was attacked on the 29th. his servant man and maid a few days after.—Mr. N. Lewis, Mr. Nixon's, and Mr. Russell's clerks; who transacted business in stores near the wharf where the *Arethusa* lay, and one of capt. Holland's cabin boys on board the adjoining vessel, were all attacked on the first or 2d of August. Mr. Lewis died

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on the 5th. Mr. Hall also died, after being affected with black vomitin .

Mr. Joice, who had been frequently on the wharf where the *Arethusa* lay, attending to the discharging of the cargo of his vessel from Bourdeaux, the latter end of July, was attacked with the same kind of fever on the 3d of August, and has no doubt himself, that he received the infection from the *Arethusa*. Captain M'Cowan, who conducted the *Arethusa* down to the Fort on the 21st of August, was attacked with the fever five days after, and was attended by me on board his own vessel at Queen-street wharf.

John Larcham, who worked on board the *Iris*, and lived back of Mr. Smith's store near the same wharf, was attacked on the 3d of August, and in the course of the same week, several other persons all in the same neighbourhood.

The weather which had been warm and dry, part of June and July was at this time cool and pleasant, and the air was rendered exceedingly pure, by torrents of rain which fell the latter end of July, and beginning of August ; the streets and wharves were also remarkably clean and sweet, and every other part of the city was uncommonly healthy. Notwithstanding this, the disease made gradual progress, and in the course of three months (at the end of which, it was extinguished by the frosts) there died in the city, the District of Southwark, the Northern Liberties, and in Kensington, one thousand two hundred and thirty-two persons ; including all ages, sexes and colours ; although more than one half of the inhabitants had retired into the country.

Dr. Lining, who wrote and transmitted the account to Dr. Whytt of its several occurrences in Charleston, published in the *Edinburgh Physical and Literary Essays*, remarks that it had been each time traced to some infected person, lately arrived from some of the West India Islands ; and that some of the seasons in which it had become epidemic, were much cooler, and the air more pure than in many other seasons when it had not occurred. The same remark holds good, with respect to the
condition

condition of the streets, wharves, and air at Philadelphia, both in 1793, and 1797; particularly the latter.

Dr. Mitchell, in a letter to Dr. Franklin, in which he describes the symptoms of the disease when it occurred in Virginia in 1741, and 1747, asserts that "the disease has chiefly raged in America, in large towns, camps or ships, and has been twice brought into Virginia by ships of war." (p. 2.) Not being suspected to be contagious by the physicians of Norfolk in 1795, its origin was not enquired into. I have not been able to procure any certainty respecting its origin at Baltimore, in the year 1794; but from its appearing first at Fell's Point, the part where the vessels came to, which were daily arriving from the West-Indies, there is a strong presumption, that it was introduced into that city by importation. About four hundred of the inhabitants of Baltimore were destroyed by it. Frost setting in early put a period to its farther ravages.

Dr. Monson, in the account which he has given of the yellow fever, at New Haven (Conn.) in 1794, states "that in June the inhabitants of that city, were alarmed at the number of sudden deaths, which had occurred from the 10th to the 20th of the month, and requested the selectmen to make enquiry into the origin of the disease. On examination it appeared, that in the beginning of June, Capt. Truman arrived from Martinico, in a sloop that was infected with the contagion of the yellow fever: that this vessel lay at the *wharf*, within a few rods of Isaac Gorham's house: that she had on board a *chest of clothes*, which had belonged to a mariner, who died of the yellow fever, in Martinico; and that his chest was carried into Mr. Austin's store, and opened in the presence of Capt. Truman, Mr. Austin, Henry Hubbard, and Polly Gorham; the three last mentioned of whom, died, in a short time after their exposure to the contents of the chest.—Hence it is highly probable that Mrs. Gorham caught the disease from the infected sloop, or clothing. Mr. Austin's store stands within three or four rods of Isaac Gorham's house; and no person in town was known to have the yellow fever previous to Capt. Truman's arrival.

June

June 26th, Isaac Gorham lost an infant child with the yellow fever; and soon after his son and daughter were affected with it: the former died. Solomon Mudge died on the 30th; Jacob Thomson's negro woman, on the 1st of July; Archibald M'Neil on the 9th; Polly Brown on the 3d of August; John Storer, jun. and John Hide, on the 8th: and widow Thomson, on the 10th. Jacob Thomson's negro woman, Solomon Mudge, John Storer, jun. and John Hide, had visited Mr. Gorham's house, a few days before their illness; Polly Brown and Mrs. Thomson, nursed in Mr. Gorham's family; and Archibald M'Neal nursed Solomon Mudge. Elias Gill, died on the 12th of August; and Samuel Griswold's wife, on the 7th: the former, visited Mr. Gorham's house; the latter nursed in his family.

There were a number of persons who caught the disease at Mr. Gorham's house, and recovered.

Mrs. Thomson, on the first day of her illness, was moved half a mile from Mr. Gorham's, into George-street. Luther Fitch caught the disease from Mrs. Thomson, and communicated it to his servant maid. Both recovered. Mr. Fitch lives in College-street, nearly three quarters of a mile distant from Mr. Gorham's house. I could trace the disease throughout the town. No person had the yellow fever, unless in consequence of attending the sick, or of being exposed to nurses, infected houses, clothing, or furniture.

I have inquired of several aged persons in this town, relative to the yellow fever, whether they knew of its having ever been here, previous to June 1794, and there is but a single instance; the facts relating to which are these:—In the year 1743, a transient person, by the name of Nevins, who came from the West-Indies, lodged at the house of Nathaniel Brown, an inn-keeper, in this city. The man was taken very sick, in the night; and died shortly afterwards; and his body was very yellow, after death. Mr. Brown's wife sickened in a short time, and died, of the same complaint; which was, at that time, supposed to be the yellow fever.

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I am credibly informed that several persons, at Mill-River, in Fairfield county, and also at New-London, died with the yellow fever, in August and September 1795. It was propagated there by infected persons from New-York.

Capt. John Smith died in this town, the 20th of August 1795. He caught the disease in New-York, and communicated it to one of his negro servants.

About 160 persons had the fever before the 1st of November when it entirely ceased. The number of deaths was 64; of this number 44 were affected with black vomiting."

In the year 1795, the yellow fever made its appearance at New-York about the 20th of July, and ceased towards the latter end of October. Between these periods seven hundred and thirty-two of the inhabitants fell victims to the malady, though a great part of the inhabitants had deserted the city, and the weather, the chief part of the time, was remarkably wet and moderately cool, a few days excepted.

The disease was traced by the Committee of Health to importation from Port-au-Prince, by the brig Zephir, which left that island the 1st, and arrived at New-York the 20th of July.

The first victims to the disease were Dr. Treat, physician of the port, and some English sailors on board the ship William, which laid near the infected brig. For the proofs of this account, I refer to the report of the New-York Committee of Health, dated Sept. 8th, 1795, and to that of the Philadelphia Board of Health, dated Sept. 17th, published in the Philadelphia Gazette of Sept. 24th, 1795.

We know from the publication of Dr. Chisholm, (entitled an Essay on the Pestilential Fever, introduced into the West-India Islands from Boulam, on the coast of Guinea, in 1793 and 1794) that the yellow fever was epidemic and extremely mortal in the island of Grenada, and that it had been carried from thence to Tobago and several other islands, several months before it made its appearance in Philadelphia.

It is also a fact generally admitted, that the native inhabitants are very seldom subject to the disease in the West-Indies; and that it is almost entirely confined to persons from cold or temperate climates, who, if attacked at all, are attacked soon after their arrival; and, that its occurrence is extremely rare, except when fleets or armies are stationed there. From all which circumstances, taken separately and collectively, it may with almost a convincing degree of certainty be concluded, that it is not derived from marsh miasmata or the effluvia of putrefying vegetable matter, otherwise the native inhabitants would be equally liable to the disease with foreigners, as is known to be the case with respect to intermitting and remitting fevers in marshy situations.

I purposely reserve my opinion respecting the source from whence the contagion is derived, and by which the yellow fever is produced and propagated, for a more ample discussion—And shall now proceed to deliver a short description of the disease as it appeared in Philadelphia in the summer and autumn of 1797.

Description of the Symptoms.

THE first symptom in persons of vigorous constitutions, was generally an acute pain in the fore part of the head, and a burning sensation in the eyes. These symptoms were either accompanied with, or immediately succeeded by a chilliness, or sense of universal coldness, (but no shivering) accompanied with the most excruciating pain in the back, knees and legs, hurried and confined respiration, oppression and distressing stricture about the epigastric region. This chilliness alternating with transient flushes of heat, and with paleness and redness of the face, with great restlessness, sometimes continued from one to six or eight hours, and in some cases longer, but in many cases the violent sense of heat came on in a few minutes without any mixture of cold. This fever was rarely preceded by the sense of debility,
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which almost invariably precedes intermitting and remitting fevers. The stomach was frequently affected with sickness and retchings to puke during the continuance of the chilliness, but seldom afterwards for the first two days, excepting in those cases in which the stomach appeared to be affected with inflammation from the beginning, as was sometimes observed. When this was the case, the stomach always felt sore and painful upon being pressed by the hand. The patient was also, always either costive, or affected with dysenteric symptoms accompanied with a burning sensation in the bowels, till the disease came to a crisis, or at least till an evident remission took place. And when stools were produced by art, they appeared white resembling those of persons with the jaundice, owing, as appears from various dissections, to an obstruction to the excretion of bile from an inflammatory affection of the ducts which lead from the liver to the duodenum.

Though in cases that terminated favourably, there was generally a diminution of the violence of the fever every morning, there was seldom a remission before the third day, and in many cases not before the fifth. When a remission did take place, it was generally accompanied with a copious discharge by the bowels deeply coloured with bile, and soon after with a general perspiration or a copious flow of urine. In some cases a solution of the disease was accompanied with, or preceded by a cholera.

The pulse after the cessation of the chilliness, was generally quick and tense, and in some cases full and throbbing, especially towards the middle of the afternoon, at which time the surface of the body was also more intensely hot and dry, and the thirst increased. The tongue always white and moist for the two first days, afterwards it varied in appearance, from a light, to a dark brown, &c. The eyes were generally inflamed and watery at first; this appearance increased or decreased with the fever. In many cases either a coma, or a perpetual inclination to vomit accompanied with a pain at stomach, intolerable anxiety, and frequent and deep sighing came on at the end of the third or beginning of
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the fourth day, and sometimes later; in the former case the pulse appeared to differ but little from a state of health, though sometimes it was very low and small, seldom so slow and full as that which arises from compression of the brain. In this case, unless speedy relief was obtained, the limbs became cold, and blood issued in streams from the nostrils, and often from the gums and intestines, &c.

In the most dangerous cases, if comatose symptoms did not supervene an incessant puking came on, and every thing was cast up the instant it reached the stomach, and the patient constantly complained of a burning and painful heat in that organ. A yellowness of the eyes generally made its appearance immediately after the commencement of the puking, and if the puking continued with violent and ineffectual strainings, the yellowness speedily diffused itself over the whole body. The pulse under these circumstances was always small and low, but generally chorded, tense, or hard. When the cause of this puking was not speedily removed, a sphacelus of the surface of the stomach took place, as appears from dissections, and a mixture was thrown up, at first slaky and of the colour of coffee grounds, and afterwards of a blacker colour and thicker consistence, resembling a mixture of foot and water. As soon as the black matter began to come up, every feverish symptom instantly subsided, except a slight alienation of reason, and a want of recollection, and the patient believed himself to be perfectly well: a cadaverous coldness now pervaded the limbs, the face became livid and bloated, and the patient soon sunk into the arms of death.

When the disease terminated favourably, it was mostly on the 3d, 5th or 7th day. When the reverse, it was on the 4th, 6th or 8th day. Convulsions frequently closed the scene. Subcultur tendinum never occurred, when the disease terminated within eight days.

In many persons the disease affected the nervous system, more than the arterial; in these cases, the febrile symptoms seldom run high, and the disease was longer protracted—longer in coming to a crisis.—In some cases
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the symptoms of debility and malignity, were great and alarming from the beginning.—In these cases the disease almost always proved mortal.

Treatment.

MY experience both in 1793 and 1797, convince me that blood-letting is not only beneficial to a certain extent, but is absolutely necessary in every case where the pain in the head is considerable, and the pulse quick and tense, and the skin hot; and also when the stomach is affected with a painful burning sensation, or feels sore upon pressure, especially if accompanied with puking, and pain upon taking any mild liquid into it. Whereas it invariably does injury in every case where the prostration of strength is great and sudden, the pulse low, weak, and irregular, the limbs colder than in health, countenance shrunk, pale, livid and dejected, accompanied with great oppression, weight and stricture about the epigastric and hypochondric regions, quick, uneasy respiration, with anxiety, restlessness, and frequent sighing. In two cases a second bleeding took evidently the vital powers, and certainly did harm, as the mercurial powders also did in another case.

In the year 1793, I certainly found bleeding beneficial in more than two thirds of the cases that I attended after the 20th of September, (and I frequently visited more than a hundred in a day at that time) for the majority of the cases that year began, as well as the last year, with inflammatory symptoms; and it is well known to physicians and historians, that bleeding is a safe and often an useful remedy in every description of disease in which inflammatory symptoms predominate, not excepting the plague, which appears to be merely a higher grade of the yellow fever.

It is the abuse, the excess, or the mistimed application of blood-letting, that should be rejected in the yellow fever, and not its judicious and moderate application.

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I am therefore, under these restrictions, an advocate for it in the early stage of the yellow fever, in every case where inflammatory symptoms predominate; and am of opinion that it may be repeated with advantage once a-day, or oftener, so long as those symptoms continue, at any period, and in every stage of the disease; notwithstanding what has been said to the contrary by the slaves of theory in the West-India islands, particularly by Dr. Todd, of Jamaica. I however, by no means, approve of the practice of those who bleed *profusely* and indiscriminately in all cases in a fever that is frequently attended with great loss of strength, dejection of mind, and putrid tendency. But to condemn bleeding, and withhold it in all cases indiscriminately, argues not only want of experience, observation, and of reflection, but of common sense.

It is evident, however indirectly it may be marked by the symptoms, that an inflammatory affection very frequently exists in some part more than another, frequently in the stomach, peculiar, in this respect, that its tendency to terminate in gangrene, as appears from numerous dissections, is infinitely greater in this disease than in any other that has ever appeared in this country. It is no less evident, that this stage, when violent, is almost constantly succeeded by a diathesis, or state of a putrescent nature, unless prevented by evacuating remedies early applied, and the strict observance of the antiphlogistic regimen.

From these circumstances, no man attentive to the suggestions of reason, would venture to draw off a very large quantity of blood at the first operation, lest it should induce too sudden debility, and thereby prevent the vital powers from counteracting the putrescent tendency of the disease; which is always the case when the debility is great, as on the other hand, the premature use of cordials and stimulating medicines inevitably increase the tendency of the existing inflammation, to terminate in gangrene. I have seen many instances of both these fatal errors, from too profuse and from too sparing *blood-letting*. Nor is this to be wondered at, in a disease which is still new to the majority of physicians in this climate;

climate; especially as it assumes a variety of different aspects according to the constitution of the patient, and the treatment he receives, which occasions an embarrassment that nothing can remove, but a habit of nice discernment, a quickness of apprehension, which enables a physician to perceive real analogies, and a correct judgment, which secures him from being misled by imaginary ones.

Dr. Chisholm's method of using mercury in the malignant fever when it appeared at Grenada in 1794, was, "to give ten grains to an adult as soon as possible, after seeing him, at every period, and under every circumstance of the disease, this he assures us, generally acted as an aperient in the degree required, about an hour or two after it was given.—At the end of three hours he repeated the same dose without opium, if the first had not purged more than twice. At the end of three hours more the same quantity was given, adding opium, or not, as the preceding doses had acted. In this manner ten grs. were given every three hours, till the salivary glands became affected, which generally happened in less than twenty-four hours from the commencement of the treatment. Signs of returning health immediately succeeded the appearance of salivation, and returning health was remarkably rapid." (See his Essay, p. 272.)

With the few cases that I have ventured to adopt this treatment, it has not succeeded with the same certainty as the Discoverer's assurances gave me reason to expect.—Yet in cases where the symptoms appear to be of a nervous kind early in the disease, instead of inflammatory, and not accompanied with those of a putrescent, or malignant appearance, perhaps it is preferable to any other, when given in small and repeated doses; observing always to restrain it from occasioning too copious evacuations, by the occasional addition of opium, or by employing it externally*. But in all cases
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* When the debility is very great, or after the accession of black vomiting, mercury makes no impression, as the lymphatics lose their power of absorption.

in which inflammatory symptoms predominate, I am certain that the most successful method of treating the disease, is by bleeding and free purging, till those symptoms are subdued.

I reserve a more ample description of the disease, and more particular directions for the treatment under various circumstances, for a future publication; in the mean time I refer to the pamphlet which I published soon after the cessation of the disease in 1793, entitled *A Treatise on the Synochus Icteroides, or Yellow Fever*, as it appeared in Philadelphia, &c. which with a few corrections, contains every thing requisite to be known on the subject, as far as respects the symptoms and cure; and shall close the subject for the present, with a copy of the Memorial of the College of Physicians of Philadelphia, to the Legislature of this State, published in the Philadelphia Gazette of the 9th of January of the present year.

*To the SENATE and HOUSE of REPRESENTATIVES of
the COMMONWEALTH of PENNSYLVANIA, the
Memorial of the COLLEGE of PHYSICIANS of PHILADELPHIA
Represents :*

“ THAT your memorialists, deeply affected with the calamities produced by the disease which has recently occurred amongst us, are impelled by a sense of duty to their fellow-citizens and themselves, to inform you, that they consider the laws which were enacted for the purpose of preserving this city from malignant contagious disorders, are very imperfect.


The subject being of immense importance, they hope to be excused for stating their sentiments with respect to it at large.

They are of opinion that the disease which produced so much mortality and distress in the year 1793, was imported into this city from the West Indies; and they
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are confirmed in this sentiment, by the circumstances attending the disease of this year, which they consider as of the same nature and derived from the same source.

Some of their most important reasons for this opinion are as follow:—The disease in question is essentially different from the fevers that occur in this climate, and which originate from domestic causes. This difference particularly regards the general progress of the symptoms, and the mortality, as is evident upon a comparison of its history with that of the ordinary diseases of this city.

A disease which resembles the fever of 1793 and of this year in many important points, has long been known in the West Indies, and those parts of America situated between the tropics, and in seven or eight different instances, in which a similar disease has occurred in the United States, in the course of this century, there is good reason to believe that it was derived from those countries. In most of the instances, the original history of the disease contains the information that it was imported. In some cases, the infection can be traced to the imported clothing of persons who died in the West Indies. In most of the cases where the importation cannot be ascertained, the first appearance of the disease has been, as in the other instances, in the neighbourhood of the shipping, or among persons connected with vessels.

The circumstances  attending the fever of this year are extremely in point; and the narrative which accompanies this, will we trust, satisfy you that it was imported.

The disease in question ^{had} commenced invariably in our seaports, while inland towns, equally exposed to the ordinary causes of fever, have escaped; and in the two last instances of its occurrence in Philadelphia, the suburbs and the country adjacent, were more healthy than usual at the same season; and at the commencement of the disease, all the parts of the city, excepting the small spaces to which it was confined, were remarkably healthy.

It exists in the West Indies, particularly in time of war, when great numbers of strangers are to be found there; and reference to dates will shew, that in most of the instances of the occurrence of the disease in the United States, there has been war in the West-Indies.

Your memorialists are aware, that cases may be adduced where the disease has occurred in persons who were not known to have been exposed to imported contagion; but such is the subtle nature of this power, that it often exists unsuspected; and similar difficulties occur respecting the small pox, and other contagions, allowed by all to be of foreign origin. There also occur, although very rarely, solitary cases of malignant remitting fevers, the symptoms of which resemble so much the disease in question, that they are often supposed to be the same; but there is this essential difference, that a malignant remittent fever has never been, to our knowledge, contagious in this climate.

The difference of sentiment among physicians, now so much regretted, resembles that which almost always takes place, when the plague is introduced into any of the civilized parts of Europe, where it is not well known. The identity of the disease, its origin and its contagious nature, have been often the subject of controversy. Some physicians have considered it as of domestic origin; but proper health-laws, strictly enforced, have latterly protected the commercial parts of Europe from its ravages.

With these sentiments of the nature of the disease, your memorialists cannot but regard a proper law respecting the subject, as a matter of the greatest importance, and although they are perfectly sensible of the imperfection of the science of medicine, yet from a conviction that physicians are the best informed, as well as the most interested in the subject, they approach you with that respect which is due to your Legislative authority, and declare their belief, that the existing health-laws of this commonwealth are not such as are best calculated to obtain the desired end, and that they ought to be improved.

Having lately communicated in writing to the governor, their ideas respecting the best methods of preventing

venting the introduction of contagious diseases, they beg leave to refer you to that communication. At the same time they tender you their professional assistance in framing an efficient law for this purpose; and thus having performed their duty, they hold themselves discharged from all responsibility, on account of the evils which may arise from the present imperfect state of the Legislative arrangements respecting this important subject.

By order of the College,
JOHN REDMAN, President.

Attest.

THOMAS C. JAMES, Secretary.

Philadelphia, December 5th 1797."

TO the above Memorial I shall only add, that to believe, the yellow fever which is as contagious and nearly as malignant as the pestilence in its worst form, "is only a higher grade of the remitting or bilious fever from marsh or putrid vegetable effluvia," requires that credulity which never reflects; and to ascribe the difference in the effects of the same cause, to a revolution in the constitution of the atmosphere, is a doctrine too unphilosophical and visionary to be embraced by any but visionary people; especially, as no experiments have been made to prove that any such revolution in the atmosphere has taken place; the contrary of which appears to be the fact, from the disease being confined to cities and close unventilated situations, instead of marshy tracts, which are the only situations in which intermittents and remittents, ever become epidemic.

F I N I S.

E R R A T A.

PAGE. LINE.

- 3, 8, for pitechie, read petechie.
 14, 12, from bottom, for 6th, read 16th.
 20, 7, for complexety, read complexity.
 — 17, for sceptic, read septic.
 23, 8, for reverias, read riverius.
 — 15, omit the word can.
 26, last line, for preceeds, read precedes.
 32, in the note, 3d line from bottom, for and jails, read of jails.
 36, 20, for then, read there.
 40, 3, add cause of the.
 42, 22, after the word plague, add and the gastritis.
 43, 7, from bottom, for wharfs, read wharves.
 47, 23, for cretion, read secretion.
 49, 12, from bottom, for trachia, read trachea.
 63, 2, from bottom, for sinna, read senna.
 70, 3, omit "because of the stricture induced."
 72, 15, from bottom, for sinfory, read sensory.
 76, 14, from bottom, for confictio, read confectio.
 78, 1, for cortus, read contus.
 88, 7, for health, read healthy.
 101, 3, for rabian, read Arabian.
 104, 17, from bottom, for ammatory, read inflammatory.
 111, last line, for intermittant, read intermittent.
 — Prefix the name of "Cloghorn," to the abstract respecting
 the remitting fever at Minorca.
 114, 2, for where, read whether.
 119, 5, from bottom, for enervate, read enervated.
 128, last line, for spincters, read sphincters.
 163, 10, for intermittants, read intermittents.
 164, 22, for insland, read island.
 183, 2, R: for minth, read menth.
 187, 6, for phlein, read phlegm.
 193, 4, last note, for conjut, read conjunct.
 200, 5, from bottom, for idiopathic, read idiopathie.

THE reader will please to correct any other typographical errors that may occur, several of which were unavoidable, owing to the author's want of leisure at the time the work was in the press.

